INCOME DISTRIBUTION, INEQUALITY AND POVERTY IN SRI LANKA, 1963-82.

BY

MUDIYANSELAGE SARATH DAYANANDA

M.S.D.K. DIVISEKERA, B.A. [Econ.] Hons. [Sri Lanka]

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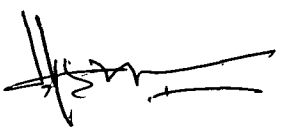
DECLARATION

This thesis contains no material which has been accepted for the award of any other higher degree graduate diploma in any university, and, to the best of my knowledge and belief, contains no material previously published or written by another person except when due reference is made in the text of the thesis.



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A B S T R A C T

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The relative intensity of concern between growth and distribution has now gone full circle. The achievement of a high rate of economic growth, the major emphasis of the development strategy, that reached its peak in the "decade of development" in the 1960s, ceded its place of priority to redistribution and eradication of mass poverty in the 1970s. A backswing of this emphasis, from redistribution to growth and from direct distributional measures to the "trickle-down", has been evident since late 1970s. The world has once again brought the objective of growth to the forefront and redistribution to a relatively low priority. The present study is carried out in the context of this changing emphasis of growth and distribution.

This study analyses the pattern of income distribution and poverty in Sri Lanka over the last three decades using income and consumption data gathered from four nationwide surveys of 1963, 73, 79 and 82. The study adopts an analytical approach, distribution of incomes are examined using two types of disaggregation, by economic sectors and ethnic groups. Standard summary and descriptive measures of income inequality are employed.

Poverty is analyzed using two poverty lines; absolute versus relative. Separate poverty lines are defined for three major socio-economic regions: urban, rural and estate. Absolute poverty lines are defined on the basis of chosen basic needs, and relative poverty lines on the basis of overall living standards of the community.

Relative inequality of incomes in Sri Lanka declined between 1963-73 and worsened after 1973. The changes are broad based; inequality of size distribution of personal, family [spending units] and per capita incomes declined between 1963- 73 and increased between 1973-82. A similar change in the income inequality was evident among all ethnic groups and within major industrial sectors.

This change in the pattern of income distribution is not merely a statistical artifact. It has been accompanied by significant changes in the living standards of the lower income groups. This inference emerges from the analysis of the incidence of absolute poverty. The percentage in absolute poverty in the economy, as well as within three major socio-economic regions, [urban, rural and estate], declined significantly between 1963-73. Between 1973-79 and 79-82 the opposite occurred, the incidence of absolute poverty increased, with such increases most pronounced between 1973 - 79. The change in the relative poverty however, was less pronounced during this period.

The changes are explained by referring to the development strategy and growth patterns of the economy. In contrast to many of the suggestions in literature, Sri Lankan experience indicates that the pattern of distribution of incomes of an economy is influenced largely by the policy measures rather than the growth per se.

Finally, the results suggest that the shift from redistribution to 'trickle-down' which occurred during the latter part of the 1970s has brought increased economic inequalities among the Sri Lankan population in general, and an absolute impoverishment among the lower income groups in particular.

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INTRODUCTION

This study analyses patterns and changes of personal income distribution in Sri Lanka placing particular emphasis on the incidence of poverty among low income groups. The study is based on four different observations of personal income distribution; 1963, 73, 79 and 82.

The pattern of Sri Lankan income distribution has been the subject of previous studies. Reference to Sri Lanka is made in numerous studies including the earliest multi-country study of Morgan [1953] and in the most recent multi-country study of Lecallion et.al [1984]. In addition, a number of individual Sri Lankan studies have been undertaken. The changing pattern of income inequality over the 1963-73 period has been studied by Abeysekera, [1976], Colombage, [1976], Karunatilake, [1974, 1975, 1976 and 1978], Lee, [1977], among many others. Changes in income inequality during the post-73 period have been studied by Bhalla & Glewwe [1986], Glewwe [1986], Lakshaman [1986], Divisekera & Felmingham [1987] and Jayasooriya & Ravallion [1987].

The major emphasis of these studies, in general, has been to evaluate relative income inequality and its changes between different points in time with little or no emphasis on the determinants of such changes. Neither do these studies appear to consider socio-economic implications of the changes, and in particular poverty. One of the aims of the present study is to fill this gap. The study attempts to answer the following specific questions:

(a) How are incomes distributed among individuals? What is the extent of income inequality and what differences could be observed between different points in time over the 1963-82 period?

(b) What are the factors determining such patterns and changes?

(c) What are the socio-economic implications of the observed patterns of income distribution and changes? Have such changes, if any, brought significant changes of the living standards of people? For example, has the number of poor increased or decreased?

Rationale of the study

Why are these questions of interest? First, income inequality and poverty are major socio-economic problems of any society and require explanation. Second, they are most challenging and disturbing issues requiring urgent solutions. In this respect, the study of individual country experience is not only useful in identifying the extent and the magnitude of such problems in that country, but is also useful for deriving policy measures of general interest to solve these problems. Third, there is a special significance in the Sri Lankan case which make its experiences of general interest. It is perhaps the only country in the third world which followed the circle of changing emphasis on the income distribution evident in the literature during last four decades.

In the early stage of development beginning from about late 1950s for instance, Sri Lanka adopted a growth strategy which focused mainly on increasing national output. During the seventies, following the changing universal concern about equity, it adopted distribution as the principle goal of its development strategy. A backswing of the emphasis, from distribution to growth, is evident during the early 1980s. It is interesting that Sri Lanka changed its policy emphasis from distribution to growth before most of the western countries. It is most important that the four observations upon which the present study is based, are located in eras representing the great changes in Sri Lanka. The first observation [1963] for example, occurred in an era where growth was the principle goal of Sri Lanka's development strategy. In contrast, the second observation [1973], was in an era where redistribution philosophy prevailed, and the third and fourth observations are located respectively in the early and mid part of an era, where distribution is of low priority. The Sri Lankan experience thus, provides an interesting case to evaluate the different policy measures and their impact on changes in income inequality and poverty.

Scope and limitations of the study

This is an objective inquiry of patterns and changes in income inequality and poverty in Sri Lanka over the 1963-82 period. The pattern of income distribution is evaluated at both aggregate [overall] and disaggregate level- by sector of activity or industry, racial groups and socio-economic regions such as urban, rural and estate. The study of poverty is however, limited to overall and socio-economic regions.

The issues of income inequality and poverty are considered as phenomena to be explained. The study adopts an analytical approach: First, it identifies the extent and magnitudes of income differences and poverty in the economy. Then, the factors involved are examined and evaluated. It is desirable that various factors affecting the determinants and division of incomes and their changes be evaluated simultaneously; i.e., both casual and economic factors, their specific role and the interaction between them. This is not attempted in this study mainly because of data limitations which also impose constraints on the methodology. Further it is not possible to quantify the impact of different individual factors using econometric or time series analysis.

Methods of analysis

The method of analysis may be related to the particular issues raised above: The first such issue is to study the pattern of distribution of incomes in each survey period. For this purpose, both summary and descriptive measures of income inequality are estimated and compared at different points in time. The second issue is to examine the determinants of prevailing income inequalities and to quantify the impact of those factors on the particular distributional patterns. This is achieved by decomposing chosen inequality measures according to different factors. A similar decomposition is employed in analysing the impact of racial income differences.

Poverty is analysed by defining and estimating two poverty lines, one based on nutritional requirements and the other on overall living

standards of the community as a whole. Three measures of poverty, Sen's index, the head count ratio and poverty gap ratio, are calculated.

The structure of the thesis

The first two chapters are devoted to a review of literature and methodological issues respectively: In the first chapter, a brief review is presented of theories of personal income distribution together with empirical literature. The second chapter reviews methodological issues such as, the measurement of income inequality, concepts and definitions, and data sources to be used in the study. In the third chapter patterns of distribution of incomes and associated inequality are discussed. The observed changes in income inequality between four points in time are then evaluated by reference to the general theoretical and empirical background developed in the first chapter. The fourth chapter is devoted to analysis of patterns of income distribution and changes therin by disaggregating the overall income distribution into major industrial groups. This chapter serves as the basis for identifying structural determinants of income inequality, as well as quantifying the forces underlying any observed changes in income inequality identified in the third chapter. A fifth chapter presents a further disaggregation of distributional patterns; the consideration here is the pattern of distribution of incomes between different ethnic groups which concludes the analysis of personal income distribution.

The next two chapters examine the issue of poverty. Chapter six provides a review of conceptual and methodological issues relevant to studying poverty and sets out the conceptual framework to be used. In chapter seven empirical evidence is presented on the incidence of absolute and relative poverty, whilst the final chapter presents a summary of the major findings of the study.

CHAPTER ONE

THE ISSUE OF INCOME DISTRIBUTION: A SURVEY OF THE LITERATURE

Introduction

Income is a flow of returns either in terms of money or in goods and services, derived from the ownership and exchange of human and non-human assets alike, and/or obtained as an outcome of a transfer process. The division of such flows of returns among various socio-economic groups or individuals is known as the personal or size distribution of incomes. How are the flow of returns distributed?: what factors determine such divisions? and what are the socio-economic implications? These are the central issues relevant to studies of income distribution and the principal concern of the present study.

Before this task is attempted it is necessary to review the general literature to provide a logical framework for the present analysis. This chapter, consisting of three sections, reviews the literature on income distribution highlighting the major issues involved: In the first section a brief discussion of the issue of income distribution, its evolution and the current state of the subject is presented. Section two and three review respectively, major theoretical and empirical background of the subject and a final section sets out the political economy of Sri Lanka which will serve as the general background to the study.

1.1 The issue of Income Distribution, its origin and the current state of the subject

The issue of personal income distribution has attracted considerable social concern. Two kinds of concerns about personal distribution of incomes may be distinguished: one is the concern about 'inequality of incomes', i.e., the dispersion of incomes [about mean]; and the other is about 'poverty', i.e., the existence of people with incomes below a certain minimum deemed necessary for maintaining an acceptable standard of living [Jhonson 1973]. Both of these concerns are ethically motivated and in particular the issue of income

inequality,[1] the most discussed issue in the income distribution literature: As Johnson [1973] states, concern about inequality stems from a definition of the good society as one in which all citizens should be economically equal [in terms of income] regardless of productive contribution. A similar concern applies to the issue of poverty. Concern about poverty reflects a definition of the good society as one in which income inequalities due to different inheritances or capacity for work are accepted, subject to the society guaranteening every citizen a decent minimum of subsistence [Jhonson 1973]. The origin of these views may be traced back to French philosopher Gracchus Babeuf:

> "nature has given every man an equal right to the enjoyment of all its goods...has imposed upon every one the obligation to work... in a true society, there must be neither rich nor poor.... the purpose of society is to defend this equity" [quoted in Abernethy, 1959].

Babeuf and his followers emphasized that need should be the sole criteria for income distribution. Hence, while one is supposed to contribute a maximum effort to production he receives an amount of goods and services in terms of his needs irrespective of his contribution.

Such ethical considerations- economic and social justice-, however, have not been the basis of economic discussion of the issue of income distribution, at least, until the latter part of the fifth decade of this century. Neither inequality of incomes, nor the distribution of incomes among persons for that matter was a concern among economists in the past: The classical economists [with the exception of Malthus, Hobson and a few others], thought inequality desirable: inequality stimulates growth by increasing the rate of savings and capital formation and therefore economic progress.

Perhaps, it was the material welfare school of economics which elevated the study of income distribution to a central position in economic analysis. Material welfare economists suggest two ways of

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[1] For a detail discussion on ethical aspects of income inequality issue, see Abbing [1978], Sen [1978], Tinbergen [1978].

improving welfare: first, by increasing the number and volume of commodities that yield utility ['economic growth'] or by distributing those commodities, justly over the society ['income distribution']. They considered income in two different but inter-related perspectives; income as an efficient allocator of resources and income as 'just' reward. The former is regarded as relevant for 'size' of income and the latter for 'distribution' of income, 'size' and 'distribution' being two determinants of economic welfare [Ranadive 1978].

Although, the great debate on welfare created an unprecedented interest in the issue of income distribution among economists, as an issue central to economic welfare, it did not change the emphasis from economic efficiency to equity. 'Efficiency' was the sole criterion for income distribution and the major concern was with overall social welfare which could be achieved through increasing the 'size' of income, i.e., economic growth. 'Equity' is assumed to be a natural outcome of efficiency and growth.

A change in this emphasis was evident in the 1960s following two important developments in the preceding two decades; the emergence of welfare states in the north and the so-called third world countries in the south and the particular growth experiences of both. The Post-war emphasis on growth reached its peak during the 'decade of development' during the sixties. The growth experience of both north and south during this period was impressive, but the expected 'trickle down' did not however, eventuate and instead, growth appeared to have increased economic inequalities.

It has been observed that rapid economic growth, particularly in the third world countries, has often been accompanied by a more unequal distribution and an increasingly relative impoverishment among the poorer sections of the community [Chenery et.al 1974]. Increasing social concern in the west on equity in economic opportunities and worsening living standards of a vast majority in the south caused a change in emphasis from efficiency to equity. Economists abandoned the conventional 'high growth and trickle down'

policy and emphasized that the achievement of greater equality in income distribution and the elimination of poverty should be the main aims of development strategy [Streeton 1974].

This renewed concern about growth and equity can be seen not only among economists, but also within the international development institutions associated with the World Bank which have begun to shift their attention from activities which were purely growth-oriented to those which attempt to strike a balance between economic growth and equity. Thus the World Bank, which followed a conservative policy in the 1960s and considered that development was largely synonymous with growth, changed its approach in the following decade. This change in attitude was reflected in a number of statements made by its president Robert McNamara [1970] who noted that:

> "The state of development throughout most of the developing world is unacceptable...because hundreds of millions of people are living at levels of deprivation that simply cannot be reconciled with any rational definition of human decency....Current development programmes are seriously inadequate because they do not significantly reduce the poverty which shapes and limits these lives. And though the matter is complex, basically we know why....The developing countries are not moving decisively enough to reduce the severe social and economic inequalities among their own people."

With these changing attitudes new strategies for urgently needed solutions emerged. The 'Functional Co-ordination Strategy', adopted by the World Bank seeks to increase facilities, services, technical inputs and institutions needed to expand agricultural productivity and raise rural incomes in nations with high levels of poverty. The 'rural transformation strategy', pursued by various United Nations agencies seeks to transform rural regions from traditional to more modern societies, increase food production, change human attitudes and create diversified rural economies capable of sustaining higher standards of living. The 'integrated development strategy', employed by the U.S. Agency for International Development, attempts to change the socio-economic structures of developing nations by focusing aid on sectors with the greatest impact on the 'poor majority' and by creating spatially integrated regional economies necessary to increase national production and exchange [Rondinelli & Ruddle, 1978, p. 480].

This heightened focus on equity however, did not survive long, following the world economic recession in the late seventies welfare states in the west have once again brought the objective of productivity and growth to the forefront and thus caused redistribution to be relegated to a relatively low priority. This shift is particularly evident in the pace setting countries such as the U.S.A and U.K. where growth focused on laissez-faire oriented development strategies in practice since 1980s [Sahota 1985].

Consequently, the world Bank and I.M.F, the major pace setters of development policies of the third world have begun to re-emphasize the need for high growth as a mean to alleviate mass poverty in the third world. To achieve these objectives, the need for individual participation in the growth process have been emphasized [see for details World bank 1980]. With this changing emphasis, both aid programs and economic guidelines to developing countries are being redirected. The eradication of mass poverty however, remains as a major objective of the World bank development strategy.

To sum up, while the issue of income inequality evolved as a concern for a given society the concept was shaped by contemporary socio-economic values and conditions. It is an issue of universal concern today, and is considered as an integral part of the economic development process. Despite reduced attention to equity this decade, it remains as one of the major challenges to both economic policy makers and the international community in general.

1.2 Theories of Income Distribution

Introduction

In an exchange economy, the shares of total incomes accruing to different members consists of payments for the use of productive resources owned by them and net transfers. Incomes derived through ownership of productive services by individuals may be classified according to the basis of their participation in economic activities- income from work or labour; incomes from property or capital. This functional distinction, labor and capital income, is however, not clearcut: Some individuals may derive incomes from both sources,

incomes from work and incomes from their property. Similarly, they are not homogeneous within categories. For example, labour is not a homogeneous factor with a single price, and those who derive income from work show wide differences in respect of their capacity, education, skill and occupation.

To understand the distribution of incomes, it is necessary to study the distribution of incomes 'between' functional categories and 'within' them. This alone is not sufficient; it is also necessary to establish a link between these two processes- determinants and division of incomes- in a such a way that personal income distribution may be explained simultaneously with the functional income distribution. Does economic literature provide such a link?

For the most part, economists have been concerned with functional income distribution although some have been concerned with personal income distribution as a descriptive and statistical phenomenon rather than a problem of economic analysis. According to Bronfenbrenner [1971, p. 26], the major distributional problem for economists past and present has been functional distribution.

1.2.1 **Theories of Functional Income Distribution**

There are three major schools of distribution theory; classical, neo-classical and post-Keynesian.[2] The essence of the classical theory [due mainly to Ricardo] is that capital earns a return that is contingent upon the difference between the marginal productivity of labour in agriculture and the wage rate. Theory implies a special law for incomes of each of the factors and determines two of them in a residual fashion: the share of land is what is left over after labour and capital have been paid their marginal products, and the share of capital is that which is left after labour has been paid its wages.

This residual approach of the classical economists was rejected by the neo-classical school and a different view of the problem of

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[2] For a detailed discussion, see Bronfenbrenner [1971], Jhonson [1973], Ranadive [1978].

distribution was introduced. All factors were assumed to be paid according to the value of their marginal product. In the neo-classical model pure production relationships and factor supply conditions together determine the distribution of incomes. As long as constant returns to scale prevail, factor rewards do exactly exhaust the product. Factor shares are determined by the prices paid for the factors.

The Post-Keynesian theory of distribution considers income distribution as more of a macro phenomenon rather than a micro one as considered in both classical and neo-classical theory. This theory due mainly to Kaldor [1956] was based on the assumption that capitalists and workers have a different propensity to save [high marginal propensity to save among capitalists and low among workers]. It is assumed that the level of investment is exogenously determined. For equilibrium, savings must equal investment and this determines the distribution of national incomes among capitalists and workers. One important implication of this theory is that the change in income distribution depends on the growth rate of the economy.

All these theories emphasize the determination and division of functional incomes between functional categories and ignore the division of such incomes within them. On the other hand, theoretical discussions on personal income distribution ignore the determinants of income and emphasize at the other extreme- the division of incomes within functional categories.

2.2.2 **Theories of Personal Income Distribution**

The available theories of personal income distribution can be classified into three groups; ability based theories, stochastic and rational individual choice theories, and human capital theories. The first emphasizes differences in human ability as a factor determining dispersion of incomes among individuals; the second, the impact of rational choice and stochastic influences and the third, the impact of human capital or skills and training.

The oldest idea about the distribution of income among persons is that incomes are distributed according to ability. Abilities are assumed to be distributed normally and given the assumption that economic efficiency is positively correlated with ability an hypothesis of normal distribution of earned income would seem to be warranted. However, Pareto's [1895] empirical finding that incomes are distributed among persons not normally but lognormally, opened the debate among theorists about how a skewed distribution of income might arise from a normal distribution of human abilities.

To reconcile this apparent contradiction- the normal distribution of abilities and a sharply skewed distribution of income- Pigou [1924] pointed out the influence of income determining factors other than ability between different groups. Assuming that abilities are normally distributed, he attributed skewedness in personal incomes to inherited wealth and the existence of non-competing groups, or lack of mobility in the population. Pigou's conjecture was subsequently confirmed by several investigators [see Staehle 1943 and Miller 1955].

A number of writers have advanced explanations on different components of ability. Boissevain [1939] observed that if earnings depended in a multiplicative way on various factors such as skills, then the distribution of earnings is skewed even if all other factors are uncorrelated and normally distributed. Staehle [1943] offered another explanation in terms of a higher work effort response to higher wage rates. If the individual supplies work effort in response to higher wages, the hours of work and wage rates are positively correlated. When positive correlation occurs between the wage rate and hours of work, the skewed distribution of wage income is perfectly consistent with normal distribution of abilities.

Roy [1950, 1951] explained the skewed distribution of earned income in terms of a skewed distribution of output. He argued that worker's earnings were proportionate to the output he produced and that output depended on such factors as speed of working, accuracy, and the number of hours worked. This multi-dimensional characteristic of ability behaves independently and acts together multiplicatively

rather than additively. Thus the resulting distribution of output and therefore earnings would tend to be log normal.

Myer [1960] combining ability with responsibility argued that earnings are dependent on the product of completing a given task successfully [which he defined as ability], and the scale of operation [responsibility]. Thus, the distribution of earnings will be skewed due to differences in the scale of operation. The greater a worker's scale of operation, the greater is his output and therefore the greater the value of his superior ability. The positive correlation between an individual's ability and his scale of operation lead to a skewed distribution even if abilities are normally distributed.

Lydall [1956, 1968, 1976], offered a more detailed analysis of the impact of abilities on distribution of incomes by taking into account various components of ability; which he described as personality or characteristics [the 'D' factor] which generate drive, determination, dynamism, energy, industry and self-discipline, and the 'R' factor, which stood for responsibility or hierarchy effect. Considering the impact of 'R' and 'D' factors, he concluded that since many of them are intercorrelated and since some of them are positively skewed, there are ample grounds for expecting the distribution of earnings to be positively skewed. In addition the R factor can account for the Pareto-like upper tail [Lydall, 1976, p. 30].

While ability based theories attribute observed inequality in earned income to the various components of human ability, Stochastic theories attribute it to random effect or chance. According to the stochastic or random chance approach, the inequality in income distribution is merely the result of a random process. The gist of this theory is that, even if a generation started from a state of strict equality of incomes and wealth, inequalities could emerge due to the existence of an indefinite number of small unidentifiable influences.

The earliest stochastic model of Gibrat [1931] showed that given some initial income distribution, if individual incomes were subject to a random percentage change independent of income level, the random process would generate a lognormal distribution of income. This is widely known in the literature as 'Gibrat's law of proportionate effect' and is the basis for other stochastic models such as those of Kaleki [1945], Chanpernowne [1953], Aitchinson and Brown [1954], Rutherford [1959] and Mandelbrot [1960]. The basic assumption underlying these theories is that there is a sequence of stochastic changes operating through time in a Markov chain or that the incomes of individuals follow a Markov process, changes in income during each interval of time being a random variable. This assures the consistency of the variance of incomes.

Combining stochastic influences with optimizing behaviour on behalf of individuals, Friedman [1953] provided an alternative explanation of skewedness in terms of the theory of rational choice. The implications of the Rational Choice approach to the distribution of income was analysed in two respects- choice among alternatives involving varying degrees of risk and choice among occupations with different incomes which compensate for varying advantages [pecuniary and non-pecuniary] attached to the occupations. Each individual chooses his area of economic activity so as to maximize his expected utility.

The attitudes towards risk are assumed to differ among individuals and every one is a risk averter in some range of income and a risk-preferer in other ranges of incomes. Thus, Friedman hypothesized that, the greater the number of people who like risk, the greater is likely to be the inequality of incomes. The allocation of resources, he noted, tends to favour risky enterprises. In such a society, inequality tends to be greater since risk takers have as much chance of being unfavourably as favourably surprised. Relying on the 'S'-shaped utility function developed by himself and Savage [1948], Friedman showed that the expected overall distribution of income would be similar to the rightward upper tail of the frequently observed lognormal distribution.

The human capital approach, another explanation of skewedness of earned income, is also based on the assumption of rational individual choice and optimizing behaviour. Individuals are assumed to choose among occupations on the basis of a calculation of the present discounted value of earnings which is equated among all occupations. The simple idea underlying human capital theory is that differences in earnings arise as a compensation for differences in the length of training and the consequent postponement of earnings. A systematic linking of investment on human capital, i.e. education, and individual earnings was presented by Mincer [1958]. The basic idea underlying Mincer's model was that an occupation requiring a longer training period must pay higher wages for the foregone income during training.

Another scholar, Becker [1964] claimed that the human capital approach provides a simple explanation for the fact that the distribution of earnings is skewed. People with more ability earn a higher rate of return on their invested human capital. The correlation between investment in human capital and the rate of return generate skewed distribution of incomes.

Those theories which attempt to explain inequality of personal incomes, may be considered as partial explanations and are subject to a number of limitations. While differences in abilities among individuals for example, have some effect on their earnings, as a theoretical proposition, many scholars are skeptical about the direct role of ability as the determinant of earnings. Despite their initutive appeal, as Sahota [19778, p.4] notes ability theory is too mechanical and simple to be able to provide a satisfactory explanation of income distribution.

The stochastic theories are perhaps the least appealing as they ignore the basic economic factors determining incomes and concentrate on mathematical laws. Further, it is based on dubious scientific procedure and as Sahota [1978] finds, a stochastic theory of distribution is apparently called into question as a result. A theory of this type is not a satisfactory theory either from the point of

view of economic analysis or policy, as it totally ignores the fact that incomes are generated through the production process of the economy.

Theories based on rational individual choice are theoretically the most appealing, they are consistent with the decision making procedure of individuals in a competitive environment. In particular, human capital theory accepts the principle of equalising differences and competitive labour markets. However, this is not free of criticism. Sahota has pointed out five objections to this approach and among them the major one is that, it takes into account only the supply side of human capital, thus he labled it as a piecemeal theory [p.16].

Despite apparent shortcomings, the theories of personal income distribution [except stochastic theory] do provide some basis for understanding of the differences in earnings or labour incomes. However, earned incomes are only a part of total incomes of a society and there are also incomes from property, which have almost been neglected in theoretical discussions.

The impact of wealth on the determination of personal incomes is widely accepted. Cannan [1912, p.249] for example, claimed that inequality in the amount of property which individuals have received by way of bequest and inheritance is by far the most potent cause of inequality. Though explicit theorizing of this has not been undertaken, Mede [1976] has demonstrated that, in a perfectly competitive laissez-fair society, it is only inequalities in endowments which can explain differences in incomes.

To sum up, the available theories of personal income distribution provide only little insight for understanding the distributional process. They ignore both income generation and important factors influencing such divisions as the ownership pattern of productive services. The traditional theory of distribution, on the other hand, ignores the division and emphasizes only the determinant of incomes. A satisfactory theory which sheds light on the process of

division of incomes among individuals needs to be based upon both the forces underlying income generation and division. Perhaps the only way this can be achieved is to link the functional income distribution with personal income distribution theories [Krelle 1978, Ranadive 1978]. This is an unfinished task and so far no systematic method has been developed to establish such a link between two classes of theories.

The lack of a well developed theory of personal income distribution contrasts sharply with empirical research in this area.[3] Unlike the theoretical literature, the empirical literature offers a wide variety of hypothesis explaining both the determinants and division of incomes.

1.3 Empirical Orientation

Much of the early empirical studies on personal income distribution were mainly geared to study the facts about the size distribution of incomes: Pareto's [1895] work in this context was the most important providing the first important generalization of the nature of the size distribution of incomes. Systematic empirical work in this field on the determinants and division of incomes however, is of recent origin and it was only in the 1950s such work began to appear. Most of these studies have focused on two different nevertheless inter-related issues: the patterns of income distribution between developed and developing countries and the relationship between economic growth and income inequality.

It was Morgan's [1953, p. 833] study which inspired much of the empirical work on this subject. Comparing distribution and levels of income in Ceylon [Sri Lanka] with Puerto Rico, U.S.A., and U.K., Morgan proposed the following two speculative hypotheses: income distribution in the under developed economies is more unequal than developed countries and, the actual degree of income inequality

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[3] Indeed, it is quite reasonable to say that income distribution is largely an empirically developed field: even the major theoreizing about personal income distribution inspired as a result of empirical work in this area such as Pareto [1895].

existing in any country may be more the result of the economy and its level of development.

Morgan's hypothesis was confirmed by Kuznets [1955] in his classical study, where he compared income data of Ceylon, India, and Puerto Rico with U.K. and U.S.A. Kravis [1960], who provided further evidence, attributed high levels of income inequality to those social and economic conditions of developing countries which distinguish them from developed countries such as barriers to equal education opportunities, the human characteristic of the population concerned, class structures, economic structure and social and political organizations.

Kuznets [1963] presented a more detailed explanation of the nature and patterns of income distribution among developing and developed countries on the basis of income data of 18 countries. He attributed observed inequality to the unequal distribution of property income [dividends, interest, rent], and participation income [income of entrepreneurs and employees]. He showed that the share of property income in both developed and developing countries was about the same but suggested that there were reasons to believe that there was greater concentration in developing countries. This follows because savings were more concentrated in these countries and therefore a relatively small proportion of the population had the ability to accumulate earning assets. Second, the equalization effect of tax legislation and economic mobility were weaker in the developing countries. He also suggested that the weaker economic position of the lower income groups in developing countries resulted in the possibilities of monopoly power persisting among the wealthy few.

Considering the impact of participation income, Kuznets showed that the wider sectoral differences in 'product' or participation income tended to be one of the major factors resulting in greater inequality in income distribution in developing countries and in particular, disparities of per capita income between agricultural and non-agricultural sectors.

Since then, a number of studies have been under taken to examine the factors underlying income inequality in developing countries [Adelman & Morris [1971, 1973], Ahluwalia [1974, 1976, Cromwell [1977]. Among them, Cromwell [1977] took a different view by attributing observed inequality in developing countries to the capitalist mode of production and structural dualism. He argued that the incomplete spread of the capitalist sector to a few industries and the exploitation of natural resources in developing countries to be the major disequalising factor. In addition, he also found a dualism in education. Thus he concluded that the persistence of two forms of dualism- economic and educational- are found to be both interrelated and mutually responsible for the present egregious inequalities in income [p.304].

While there are many factors influencing the pattern of income distribution revealed in these empirical studies, economists have focused on the economic growth process as the major factor influencing both the determinants and changes in income distribution.

1.2.1 **The Relationship between the Economic Growth and Income Distribution**

Kuznets [1955], supporting Morgan's [1953] speculation that the actual degree of inequality existing in any country may be more the result of the economy and its level of development, demonstrated that wider inequality in the secular income structure of under-developed countries is associated with a much lower level of average income per capita. Further he noted that this unequal income structure presumably co-existed with a low rate of growth of per capita income. Thus, in a country where the level of income is low and the rate of economic growth is slow, the inequality of income distribution is high. This follows the hypothesis that the degree of inequality is a function of a country's level of income and the rate of economic growth. Kravis [1960] supporting this argument concluded that, "there is a discernable tendency for under-development, low incomes and inequality to go hand in hand and for development, high incomes and relative equality to be associated with one another" [p.409].

The above hypothesis was followed by the so-called 'U' [inverted] hypothesis, advanced by Kuznets [1955], which suggests that inequality first increases and then decreases with development. The rise in the relative income inequality in the early stages of development, as Kuznets pointed out is due to the concentration of growth in the modern sector of the economy which is small [in terms of employment]. In the pre-industrial society, where slow growing traditional agriculture predominated there was little differentiation, but with the introduction of faster growing capitalistic industries the degree of differentiation increases creating large differences between incomes among agricuturalists and capitalists. These structural changes, he pointed out, are likely to be accompanied by an increase in the relative income inequality.

In the latter stages of development, as the modern sector expands it absorbs a larger proportion of the labour force into high income employment thereby reducing the pressure of population in the traditional sectors and narrowing the inter-sector income differentials. Furthermore, the cumulative impact of the expanded education system and a long established modern sector which creates a highly trained labour force tend to increase the share of wage incomes thus reducing the inequality of incomes.

Much of the subsequent research focused on testing of this hypothesis; some have tested on the basis of cross-country data and others on the basis of a given country's growth process. Empirical evidence lending support to Kuznets hypothesis has been found in a number of studies. Adelman & Morris for example, analysing income data for 74 countries, suggested that at the early stages of development process economic development works to the relative disadvantage of the lowest income groups [1971, p. 12]. Paukert [1973], using cross country data for 53 countries at different levels of development [measured by per capita G.N.P in 1965 US dollars] provided a rigorous proof of the 'U' hypothesis:

> "There is a sharp increase in inequality as one moves from countries in lowest income groups to those in $100-200 group, and a further but less pronounced increase as one moves into the $201-300 group. This group and next [$300-500]

> represents the peak of inequality. There is a substantial reduction in inequality in the $501-1000 group, whose general level of inequality corresponds to that of the lowest group [under $100]. As one moves further along the developed paths, to the $1000-2000, and to the above $2000 groups, there is a clear reduction in the extent of inequality".[P.116]

Further evidence lending support to the inverted 'U' hypothesis on the basis of cross-country data has been presented by Chenery & Syrquin [1975], Ahluwalia [1974, 1976a, and b] Lydall [1977]. According to the study by Ahluwala, the peak of inequality reaches at per capita income level of $364 [1965-71 US dollar], according to Chenery & Syrquin [1975] at per capita income levels of $300 [1964 US dollar] and according to Lydall at $250 [1971 US dollar].

All these studies reveal that income inequality tends to increase in the early stage of development, and is followed by a period of declining inequality after a certain income level has been reached. However, they also reveal significant intercountry variation in inequality which is not explained by income levels. Adelman & Morris [1973], Chenery & Syrquin [1975] and Ahluwalia [1974, 1976] in their regression analysis include other explanatory variables to test for inter country variations. They add proxies for education and dualism among many other factors that are thought to have some effect on income distribution. According to Adelman & Morris [1973] the following four factors are important in determining distributional patterns: (a) rate of improvement in human resources [education], (b) direct government activity [government investment and expenditure], (c) socio-economic dualism and (d), the abundance of natural resources [a proxy for wealth concentration]. They found that (c) and (d) are contributing to greater inequality in incomes and (a) and (b) to greater equality. Ahluwalia [1976] also finds that expansion of education and demographic transition contribute significantly to the explanation of the improvement of equity, but failed to observe the factors leading to early deterioration.

A second hypothesis suggested in the literature is that, in addition to 'level of growth', the 'rate of growth' prevailing at a given point in time influences both the degree of income inequality

and its changes: The higher the rate of economic growth, the higher will be the degree of income inequality and lower the rate of growth lower will be the inequality [Adelman & Morris 1973]. Thus, in a period where an economy grows rapidly, the inequality of income tends to increase and the reversal occurs in periods of slow growth. Empirical evidence lending support to this hypothesis can be observed in the study by Berry [1974]. His study on Colombia, which was based on time series data covering three decades, revealed an increase in income inequality in periods of rapid growth and a reversal in slow growth periods. Such a comprehensive study based on time series data however, is not available for other countries. But individual country studies which examine the change in income inequality between different points in time provide further evidence on the impact of growth rate on changes in income inequality.

Rising income inequality associated with a rapid rate of economic growth during the late 1960s and early 1970s in Brazil was observed by Fishlow [1972]; and in Argentina [during 1953-61], El-Salvadore [1945-61] and Mexico [1963-68] by ECLA. In the Asian region rising income inequality associated with high economic growth rates have been observed in the Phillipines ILO [1974], Mijares & Belarmino [1973]. However, there is also evidence in some countries that the rapid rate of growth has been accompanied by declining income inequalities. In the Latin American region, such trends have been found in Costa Rica [Cespedes, 1973]. In the Asian region; Singapore [Rao & Ramakrishnan, 1977], Pakistan [Ayub, 1977], Taiwan [Fei, Ranis & Kuo, 1978] and Hong Kong [Hasia & Chau, 1978] have experienced both a high growth rate and a reduction in inequality.

In summary, the central issue addressed in the empirical literature has been the relationship between economic growth and the distributional process. The conventional wisdom suggests that both the degree of income inequality and its changes are determined by the growth process. Two major hypotheses have been suggested: inequality of incomes tends to increase in the early stage of development and trickle down when the economy reaches a certain level of development and the degree of income inequality and its changes are influenced by

the rate of economic growth. The available empirical evidence is mixed and inconclusive.

Thus, considerable scepticism has been expressed among economists about the impact of growth on the inequality of incomes and changes over time. While some question the validity of the conventional thesis as a viable explanation of changes in income inequality over time [Lee 1977, Bacha 1977], some argue that growth itself does not determine changes in a country's inequality and the need for evaluating such patterns in the context of the political economy underlying the growth process of individual countries has been emphasized. Field [1980] for example, reviewing growth experience and change in income inequality among 13 developing countries noted that;

> "the absence of systematic relationship among these variables [levels of economic growth and rate of growth] suggests otherwise. Growth itself does not determine a country's inequality course. Rather, the decisive factor is the type of economic growth as determined by the environment in which growth occurs and the political decisions taken". [P. 94, emphasis added].

The political economy of Sri Lanka cannot be divorced from the debate, because the rapid changes in the direction of economic development are bound to influence the growth process and the patterns of income distribution. It is appropriate thus to review this issue now.

1.4 **The Political Economy of Sri Lanka**

One of the fundamental tasks of most of the developing countries, once they had gained political independence, was the immediate drive to gain economic independence. However, in the case of Sri Lanka which gained political independence in 1948, an immediate need for economic independence did not emerge[4]; such a need was perceived in

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[4] At the time of independence, Sri Lanka was favoured with many advantages which were not shared by most of other(Asian) countries. For a detailed discussion on this see Corea (1965), Wilson (1974), Snodgrass & Esseks (1978).

the late fifties. This need was highlighted by the vulnerability of the country's economy due to its openness and substantial dependence on a narrow range of primary products [Moller 1972, Balakrishnan 1977, Gunasekera 1977, Wickramaratne 1977]. The growth strategy that followed centered around one fundamental structural problem of the economy, the Balance of Payments[5].

The balance of payments problem has dominated the country's economy since about 1957 and became increasingly severe in the sixties due to unfavourable prices for major exports, declining terms of trade and increased import demand. Imports were however allowed freely until 1961 and the resulting balance of payments deficits were financed largely through drawing of foreign assets [Dahanayake 1976]. This in turn led to a depletion of such assets leaving no alternative but to curtail imports. The initial reaction was to impose quantitative restrictions on imports, covering manufactured consumer goods [luxuries] and later extended to intermediate and other consumer goods including essentials.

In the face of mounting balance of payment difficulties [Dahanayake 1977], the development strategy chosen by Sri Lanka in its early stage of development was import substitution, which emphasized industrialization, a policy adopted by almost all the LDCs after independence [Hues 1982]. The preferred style of development underlying the growth strategy was the mixed economy concept[6] growth through private and public sector participation [Silva 1982].

The rapid expansion of the manufacturing sector during the sixties imposed an additional burden on the already critical problem of the balance of payments, as most of the newly emerged industries were based on imported raw materials and other inputs. This, coupled with rising import demand for essential food on the one hand and

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[5]A detailed analysis of the balance of payment problem of Sri Lanka see Dahanayake [1977]

[6]It should be noted that government intervened only in the establishment of basic industries such as steel, cement etc. requiring large capital outlays [Gunasekera 1976, Balakrishnan 1977].

declining export earnings on the other, severly constrained the import capacity of the economy.

A redirection of import substitution policy away from manufacturing to domestic agriculture is evident from 1967. This was a time when world prices of food items were on the rise and as the country was heavily dependent on imported food items, it became necessary to increase the domestic production of food [Karunatilaka 1978]. More and more goods and services, including essential food imports, were curtailed in subsequent years and import substitution became the growth strategy spreading through almost every production activity until 1977, the second era of the modern growth of the Sri Lankan economy which took a different direction.

The period 1970-77 is a crucial time in the history of the Sri Lanka economy and must be isolated from the preceding era. It was a period in which the economy of Sri Lanka underwent unprecedented economic crises. World economic recession and the world oil price hike of the early 70s hit the economy adversely, and the balance of payments difficulties reached crisis levels. Unemployment reached high levels[I.L.O 1971], and social unrest among the unemployed resulted in an uprising against the government in 1971. These events and the particular political philosophy of the coalition government[7] elected to office in 1970 [June], shaped growth strategy and priorities which were notably different from the preceding era. Growth with equity was the first priority and the foremost style of development pursued by the government during this period was one which encouraged the public sector and a high degree of economic and market

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[7] The political philosophy and the priorities of the coalition are illustrated well by the following quotations. "This government has three major commitments. It is committed to lay the foundation for an irrevocable transition of the economy to a socialist one. .....The state should adopt a socialist-oriented approach both to the development and regulation of industry. .....basic and essential industry shall be under state management, if not under direct state ownership (Budget Speech 70/71 p.35). Eliminate economic and social privilege, disparity and ensure equality of opportunity to all citizens (Manifesto p.1)

regulation [Dahanayake 1982]. Controls over personal wealth and the means of production followed. This era of controls and regulation of economic activity ended by mid 1977 with the electoral defeat of the coalition government.

The period beginning in mid 1977 marks the reversal of the economic strategy of the preceding era. The inward looking approach to development, the basic thrust of the growth strategy adopted by all successive governments since 1956 was replaced by an outward looking stance, involving the liberalization of the economy both externally and internally. A new policy package introduced in the later part of 77 aimed for economic growth and income generation largely through private sector participation.[B.S.77/78].

In summary, three distinct epochs in modern Sri Lankan economic history, each characterized by diverse political and economic persuasions, may be identified:

Epoch 1 : Begins in 1956 and proceeds to 1970 and is characterized by inward looking approaches to growth. The prevailing thrust of development strategy was directed towards import substitution and encouragement of local manufacturing industry and in the last three years [i.e., from 1967] domestic agriculture. The initial year of this study[1963] is located in the mid part of this epoch.

Epoch 11 :1970-1977, This era is a continuation of the policies of the preceding era but with notable differences. A high degree of public sector participation and regulation of economic activity and the priority of the development strategy centered around achieving greater equity in economic and social life. The second year[1973] of the study is located in the middle of this epoch.

Epoch 111 : Extends from mid 1977 to the present time and is an era of liberalization and deregulation of economic activity, abandonment of controls generally and the preference for an open economy with greater reliance on the application of free market principles. The third

[1979] and fourth[1982] years of the inquiry are located in the early and middle stages of this epoch.

CHAPTER TWO

CONCEPTS, DEFINITIONS, SOURCE OF DATA AND METHOD OF ANALYSIS

In the preceding chapter, a brief survey of the income distribution issue, its theoretical and empirical background was presented. This chapter reviews major conceptual and methodological issues relevant to studies of income distribution with the goal of setting out the methodological framework to be used in this study. There are three major problems of a conceptual and methodological nature that need to be clarified, namely; the concept and definition of income and recipient unit, choice of measures of inequality and the source of data.

There is no single concept of aggregate income of society; it may be given different interpretations by for example, tax authorities, national account experts and by academics. Each of these concepts refers to different components of a society's aggregate income. Similarly, income data are available according to different units of recipients, such as individual, family, household and spending units. Moreover, available statistical measures of income inequality are designed to measure different aspects of income inequality and view income distributions from different view points. In addition, there remains the problem of choosing appropriate data sources: there is no single source of data that can be used to study income distribution whilst available data are often subject to wide margins of errors. Thus it is necessary that these issues be clarified first as the interpretation of size distribution of incomes of a community at a given point or its changes over time depends crucially on the chosen conceptual and methodological framework. The chapter is organized as follows:

In the following section different concepts and definitions of income and recipient unit are discussed and section two is devoted to reviewing various measures of income inequality. Section three evaluates the data sources to be used in the study whilst the concepts

and definitions including the measures of income inequality to be used in the study are defined in the final section.

2.1 The Concept of Income and Recipient unit

Conventionally, net personal income is defined as the flow of commodities and services accruing to an individual, through a period of time and available for disposition after deducting the necessary cost of aquisition [Hewett, 1925, pp. 22-3]. However, what should be included as income is not always simple.[1] Most economists, however, prefer the definition of Henri C. Simons [1938], where personal income is defined as the algebriac sum of; the market value of rights exercised in consumption which encompasses not only money income but also the income in kind such as fringe benefits consumption of home garden products, and the change in the value of the stocks of property rights between beginning and end of the period in question.

In national income accounting, where terminology is more or less standardized, aggregate income is defined as the payments, disbursed or accrued, to the factors of production for services rendered in a given period of time. On the other hand, personal income includes all payments which are actually disbursed to the factors of production plus various kinds of transfers such as, pensions and gifts, but corporate savings are excluded because this kind of income is accrued, not disbursed. Disposable income is that portion of personal income remaining when all personal taxes have been paid. Each of these concepts view aggregate incomes of a society differently and one concept may differ from the other [may be narrow or wide] depending on what elements of aggregate incomes are included. The choice of the appropriate concept therefore needs to be made according to the aim or the preference of the researcher.

At this point, it is useful to clarify an important methodological point: that is, how incomes are viewed and measured. There are two approaches to measuring income; one approach is to regard income as a measure of productivity and the other is to

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[1] For a detail discussion on this issue, see Simons et. al [1983].

consider income as a measure of welfare. Reference to this in the context of income distribution implies that income is determined by productivity [income as effect] and as determining welfare [income as a cause] and these two variants are considered simultaneously [Lebergott 1968].[2] Thus the need for use of a comprehensive definition of incomes [including not only ones earnings through participation in economic activities, but also transfer payments which enhance one's purchasing power] regardless whether a particular study aims to analyse income distribution objectively or subjectively [for example, some normative consideration of social welfare] has been emphasized [ESCAFE 1972].

However, with respect to recipient units, the need for use of different units has been emphasized. The 'individual income recipient' as the unit of study is considered to be desirable if attention is focused on analysing the distributional patterns associated with the production structure of an economy and generation of such incomes by means of economic and institutional factors, such as sector of activity, race, age, occupation and education [Kakwani 1986]. On the other hand, if the focus is on the evaluation of economic welfare of the population, the family [spending units or households] is considered to be the appropriate unit.

The rationale of choosing an individual as the appropriate recipient unit for studying the size distribution of incomes of a society stems from the fact that income is largely earned by individuals. The rationale of choosing family as the unit of study stems from the assertion that for welfare measurement income need to be viewed in relation to the needs of people [Kuznets, 1963, 1976]. As the family is the basic unit which determines the choices with respect to use of incomes, it follows that with respect to receipt of

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[2] In welfare economics same distinction appears in slightly different form: income as an 'efficient allocator' and income as just reward. The former is regarded as relevant for 'size' of incomes and the latter for distribution of incomes, the 'size' and 'distribution' being the two determinants of economic welfare [Ranadive 1978, p. 5].

income, family is also the appropriate unit.[3]

However, there is a growing dissatisfaction among researchers about using household or family as the basic recipient unit in welfare analysis. The major criticism is that families are varied in size and composition [for instance, sex and age-wise] therefore, comparison of incomes between families sheds little light on welfare disparities. Thus, the need for replacing the family as the basic unit of analysis by an alternative recipient unit; namely individual family members has been suggested. According to Kuznets:

> "It make little sense to talk about inequality in the size distribution of incomes among families or households by income per family or household when the underlying units differ so much in size....before any analysis can be undertaken, size distribution of families or household must be converted to distributions of persons [or consumer equivalents] by size of family or household income per person [or per consumer]" [1976, p. 87].

Regardless of whether income distributions are analysed objectively or subjectively, it is possible to study the size distribution of incomes of a population using all these units if the data permit, however the outcome would differ with the unit. For example, if one measures the degree of income inequality of the population using individual income receivers as the basic unit as opposed to families or households, the degree of inequality revealed in the former case will often be higher than the latter case. This is because, a family could consist of more than one income recipient, and given the pooling of such incomes the differences between incomes among families could be lower than the differences in incomes between individual income recipients. When one moves from family to per capita incomes [PCY] the degree of inequality tends to decline further. This difference emerges from the link between family

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[3] Methodologically, there are other considerations as well. For example, some incomes accrue to families but not to individuals [for example, incomes from family enterprises and properties jointly hold by the members of a family], and it is difficult to distinguish the division of such incomes among different members of a family [Kuznets 1963, 1976].

income and family size. It is well-known that the mean family size, in general, is an increasing function of family income. But family size is a decreasing function of family PCY.[4] Thus, the inequality of family incomes which is positively correlated with their size is higher than the inequality of PCY which is negatively correlated with family size.

To sum up, the appropriate concept of income and the recipient unit need to be chosen according to the objective of the study. The consideration in this study is to analyse the pattern of income distribution generated through the production and payment system of the economy. It is an objective inquiry thus the logical choice is the individual income recipient. In the latter part of the study where welfare implications of such distributions are evaluated [in terms of poverty], we use per capita incomes derived by dividing income per family by the corresponding number of individual members.

2.2 Measurement of Income Inequality

Traditionally, the measurement of inequality has been carried out on the basis of the Lorenz diagram [Lorenz 1883], wherein the percentage of the population arranged from the lowest [poorest] to highest [richest] are presented on the horizontal axis and percentages of income enjoyed by the lower x% of the population is shown in the vertical axis [cf.fg. 2.1]. The diagonal rising from south-east [0,0] to the north-est [1,1] presents the line of equal distribution implying that equal shares of incomes are enjoyed by an equal proportion of income recipients. In the absence of perfect equality, the Lorenz curve will lie below the diagonal. The closer the Lorenz curve to the egalitarian line or the diagonal, the greater will be equity and closer the curve to horizontal axis, the greater will be inequality. The Lorenz approach to measuring income inequality has been used as a criterion for ranking different income distributions in the literature [Kakwani 1986].

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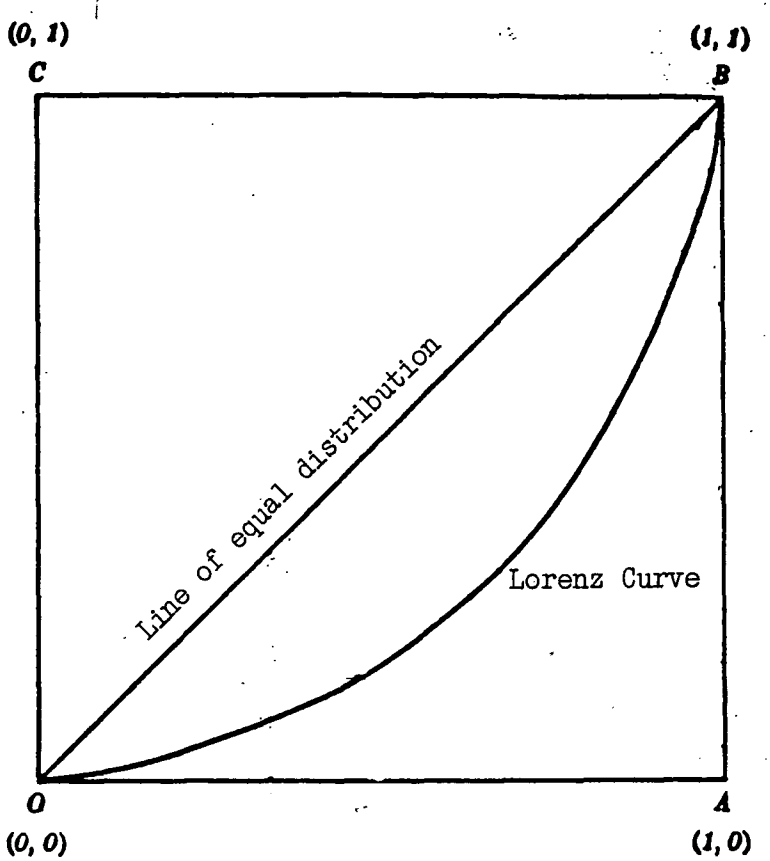
[4] For an analytical description and empirical evidence regarding this relation, see Kuznets, 1976, World Bank, 1980. Further empirical evidence could be found in Sri Lankan data. For details see, CFS. 1, 1063, 73, 78/79 and 81/82.

Figure 2.1 The Lorenz Diagram



The ranking provided by the Lorenz criterion however, is partial; when the Lorenz curve of one distribution lies inside another distribution one can claim unambiguously that the first distribution is more equal than the second. But when two Lorenz curves intersect, neither distribution can said to be more equal than the other. Consequently, a number of alternative measures to rank different distributions and to measure income inequality on the basis of summary statistics are to be found in the literature. Some measures have been derived from the statistical literature and some specifically to measure income inequalities.

The available measures of inequality can be distinguished as positive and normative [Sen 1973]: The former views income inequality objectively and the latter views inequality subjectively. The class of measures which belong to the first category make no explicit use of any concept of social welfare or any other ethical

basis[5] and the normative measures are based on explicit formulation of social welfare and the loss incurred from unequal distribution [Sen 1973].

Among the positive measures; the range, relative mean deviation, the coefficient of variation and the standard deviation of logarithms are usual measures of dispersion of a given set of data. The other measures belonging to the class of positive measures, the Gini coefficient and Theil's measures are specifically derived to measure the degree of income inequality. Among the normative measures, Dalton's index and Atkinson's measure are derived on the basis of a specified welfare norm.

Among different positive measures, the coefficient of variation [CV], the standard deviation of logarithms [VL], the Gini [G] coefficient and Theil's measures [T and L] are the most widely used in empirical studies. The CV, suggested by Pearson, is defined as the ratio of standard deviation and the mean:

$$CV = V^{1/2}/\mu \qquad [2.1]$$

where, $V = \sum_{i=1}^{n} (\mu - y_i)^2 / n$ and, y_i is the income of i-th individual.

The Variance of the logarithm of incomes [VL], is defined as:

$$VL = \sum_{i=1}^{n} (\log \mu - \log y_i)^2 / n \qquad [2.2]$$

These two measures derived from statistical analysis have one common defficiency; they measure the variation or dispersion from the

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[5] See for details, Abbing [1978], Kakwani [1980, 1986], van Praag [1978], Sen [1978], Tinbergen [1975, 1978],

mean. A measure which avoids this and is most widely used in the literature is the Gini Coefficient [G] devised by Gini [1912] and enriched by Dalton [1920], Yntema [1938], Atkinson [1970], Newbery [1970] Sen [1973] and others. The G can be defined either in terms of the Lorenz curve or as a measure of dispersion which takes into account differences in all pairs of incomes. In terms of the Lorenz curve, G may be defined as 'twice the area between the Lorenz curve and the eagalitarian line' and alternatively, as 'one half the relative mean difference' and be written as [Kendal & Stuart, 1963]:

$$G = \frac{1}{2n^2\mu} \sum_{i=1}^{n} \sum_{j=1}^{n} |y_i - y_j| \qquad [2.3]$$

where, μ is the mean income and y_i is the incomes of the i-th individual. The Gini index lies in the range zero and unity, when all incomes are distributed to one person it takes the value of unity [perfect inequality] and incomes are distributed equally among individuals, it takes the value zero [perfect equality].

Finally, among two alternative inequality measures proposed by Theil the first measure [T] is defined as:

$$T = -\frac{1}{n} \sum_{i=1}^{n} \frac{y_i}{\mu} \log \frac{y_i}{\mu} \qquad [2.4]$$

He derived this on the basis of the notion of entropy in information theory .[6] Let H(y) be the entropy associated with the income

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[6] The entropy theory in general addresses the the probability that certain event will occur. Suppose x is the probability that a certain event will occur. The information content H(x) noticing that the event in fact has occurred is a decreasing function of x. One formula that satisfy tis property is the logarithm of the reciprocal of x: h(x) = log(1/x). When there are n possible events,
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(Footnote continues on next page)

shares y_i/Y .....y_n/Y:

$$H(y) = \sum_{i=1}^{n} [y_i/Y] \log \frac{1}{[y_i/Y]}$$

The closer the income shares $[y_i/Y]$ to the population shares $(1/n)$, the greater is $H(y)$: and when income share of each person equals $(1/n)$, $H(y)$ attains its maximum value of log n. On the other hand, if one's income share tends to unity and all the others tends to zero, $H(y)$ reaches its minimum value, zero. Then a measure of inequality can be obtained simply by subtracting $H(y)$ from its maximum value, log n;

$$T = \log n - H(y)$$

$$= \sum_{i=}^{n} [y_i/Y] \log \frac{(y_i/Y)}{(1/n)} = \frac{1}{n} \sum_{i=1}^{n} \frac{y_i}{\mu} \log \frac{y_i}{\mu}$$

where, $n\mu = \sum_{i=}^{n} y_i = Y$ is the total income. Theil interprets T as 'the expected information of a message which transforms population shares into income shares' [p. 95]. Another inequality measure, proposed by Theil and known as Theil's second measure, [Theil's L measure] is analogous to T but it reverses the role of income shares and population shares;

(Footnote continued from previous page)

situation can be viewed as the sum of the information content of each event weighted by the respective probabilities; $H(x) = \sum_{i=1}^{n} x_i h(x_i) = \sum_{i=1}^{n} \log (1/x_i)$. Closer the n probabilities x_i to $(1/n)$ the greater is the entropy.

$$L = \sum_{i=1}^{n} (1/n) \log \frac{(1/n)}{(y/Y)} \qquad [2.5]$$

This is interpreted as 'the expected information content of the indirect message which transforms the income shares as prior probabilities into the population shares as posterior probabilities' [p. 125].

Normative measures

The normative considerations in measuring income inequality are due to Dalton [1920] who argued that, to be relevant, any measure of inequality must be concerned with economic welfare. Dalton took the ratio of actual welfare to maximal social welfare as his measure of inequality.

$$D = \{\sum_{i=1}^{n} U(y_i)\}/nU(\mu) \qquad [2.6]$$

Where, $U(y_i)$ is the utility function of i-th individual given his income y_i and $U(\mu)$ is the maximum welfare that society could enjoy given equally distributed incomes.

The derivation of this measure is based on the assumption that social welfare is the sum of individual utilities that are functions of their incomes and that each individual has the same utility function. The social welfare function will, therefore, be additive, separable and symmetric. Atkinson [1970], criticizing Dalton index on the grounds that it is not invariant with respect to positive linear transformation of the utility function, proposed a new measure based on the concept of 'equally distributed equivalent income' [y_ε]. y_ε is the income level [per capita], which, if equally distributed would give the same level of welfare generated by the present distribution;

$$y_\varepsilon = y|[nU(y)] = \sum_{i=1}^{n} U(y_i)$$

The Atkinson's measure of inequality is then defined as one minus the ratio of y_ε to the mean income of the actual distribution;

$$A = 1 - (y_\varepsilon / \mu) \qquad [2.7]$$

The implicit assumption underlying this derivation is that social welfare can be expressed as a function of total income [average income] and a measure of inequality. One appealing property of this measure is that one can choose the value of the inequality aversion parameter, ε, so as to reflect the weight attached by society to inequality in the distribution. It ranges from zero, [which means that the society is indifferent about the distribution], to infinity, [which means that society is concerned only with the position of the lowest income group]. In general, Atkinson's measure can be written as follows:

$$A = 1 - \left[\sum_{i=1}^{n} (y_i/\bar{y})^{1-\varepsilon} \, n_i \right]^{1/(1-\varepsilon)}$$

Much of the criticism of this measure centre around, among other things, the treatment of the social welfare function [Sen 1973, 1978, Kakwani 1980] which is based on the utilitarian framework, that is the addition of individual welfare components. The welfare of an individual is determined without consideration for the welfare of others. The concept of inequality here is completely determined by the form of the utility function. Further, the index is sensitive

to the choice of inequality aversion parameter, ε.[7] Thus, there is a problem of selecting the appropriate values of ε.

In general, normative approach to measuring income inequality and associated measures appear to be less acceptable. Both indices, Dalton and Atkinson, measure in alternative ways, the loss of welfare caused through maldistribution. Mede [1976] calling this welfare loss 'distributional waste', demonstrated that a measure of distributional waste is not really a measure of inequality at all. It is rather a measure of inefficiency or the loss of utility from a less than optimal distribution of the prevailing incomes. Thus, a strong case is made for rejecting these normative measures for the purpose of measuring inequality.

Moreover, one can use a measure [or measures] of income inequality from welfare perspective irrespective of the fact that a given measure is a positive one.[8] But the difficulty with this approach in general is that the welfare ranking provided by different measures are varied and therefore, different measures would lead to different rankings of distributions and sometimes, would lead to conflicting rankings [see for details, Yntemma 1933; Ranadive 1965; Weisskoff 1970; Atkinson 1970, Kakwani 1986]. Thus, the choice among different inequality measures are usually made using a set of axioms which are widely acceptable. There are three basic properties [or axiomatic requirements] that one would like an inequality index to satisfy [Sen, 1973, Cowell, 1977, Anand, 1984]:

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[7] As reveled from Atkinson's study [1970] based on data collected by Kuznets [1963] covering the distribution of incomes in seven developed and five developing countries, the range of variations in the inequality was considerable , and that the ranking of the countries change considerably with changes in value of ε.

[8] This is because, measured inequality can be evaluated in terms of welfare and there is a welfare function underlying each of the positive measures. For details on different welfare functions underlying positive measures, see Sen [1973], Kakwani [1980, 1986].

a. Income scale independence- that is, the index remains invariant if everyone's income is changed by the same proportion.
b. Population size independence- the measure should be independent of the number of income receivers.
c. The Pigou-Dalton criterion- Any transfer from a poor to a richer person, other things remains the same, should reduce the value of index.

All the measures cited in the text above; CV, G, T, L and Atkinson's index satisfy three axiomatic requirements, except VL, which violates the Pigou-Dalton criterion. This is perhaps the most important property that an inequality index should possess [Dalton 1933, Sen 1973] in particular in an inter-temporal study of income inequality like this; thus VL is not suited. Among remaining measures, the CV has the drawback that it is based on an arbitrary squaring procedure and only measures incomes vis-a-vis the mean [Sen, 1973]. The Gini coefficient, on the other hand, avoids this drawback and captures the differences between every pair of incomes and not merely from the mean; it is therefore a direct measure of inequality [Bigsten, 1983].

There is however, one drawback with the Gini coefficient; it is not additively decomposable. Theil's entropy measure [T] is superior to Gini in this respect as it is additively decomposable according to sub groups. But it is the least appealing among all of the measures because as Sen argues it is an arbitrary formulation. Further, its use as an inequality measure, as Field notes is 'far from apparent' [1980, p. 104]. Despite this intuitively less appealing property we wish to use Theil's T measure in addition to the Gini coefficient because of its decomposability, the property which the Gini coefficient fails to meet. The choice of Gini coefficient as the principle measure of inequality in this study is made not simply because of its wide usage in the literature and the property that it directly relates to the Lorenz curve, but also it forms the basis for the derivation of a poverty measure which will be discussed in chapter 6.

Before concluding, it is appropriate to comment on some specific properties of these two measures: Both G and T are consistent with the Lorenz criterion in ranking income distributions, however, the sensitivity of these two measures differs. For example, as Champernowne [1974] reveals, G is sensitive to income distributions reflecting a wide spread of the less extreme incomes without much tendency for the majority of them to be bunched within quite a narrow range. T, on the other hand, is highly sensitive to distributions with extreme incomes [exceptionally rich]. Thus, the measured inequality of a given distribution using G and T will not be identical in magnitude and will depend upon the particular characteristics of the distribution. Moreover, G is highly sensitive to the income transfers at middle income ranges, and T at the upper income ranges.

2.2.1 Inequality Decomposition.

A type of question frequently encountered in the analysis of income inequality concerns the extent to which inequality in the total population can be attributed to inequality within and between sub groups of the population. The total inequality of a population can be seen to be determined by the inequality within and between sub-groups of the population. Thus, if the classification of population into sub-groups is based on an assumed or observed relation to income, then using decomposition methodology, it is possible to identify the significance of each group on the determination of overall income. Further, if population data are available for different periods then it is possible to consider not only whether inequality has changed, but also the sources of change [Murray 1977, 1978]. A change in income inequality of the population for example, can be due either to changes in the inequality within groups, or to change in inequality between groups. This mode of inquiry therefore is of greater value for understanding the structure of income distribution, changes over time and for identifying the most important factors determining the overall income inequality of the population [Fields, 1980]. The usual method is to employ [additively] decomposable inequality measures and to disaggregate the total inequality into sub groups according to chosen criteria.

An inequality measure is said to be [additively] decomposable if the population of income earners can be broken down into a certain number of sub-groups, the inequality measure for the total population can be expressed as sum of inequality measures 'within' its sub-groups, weighted by coefficients depending on their aggregate characteristics, and of the inequality existing 'between' them. Decomposability is a useful property, but any decomposable measure is not necessarily a satisfactory index of income inequality. The CV, for instance is readily decomposable into within and between groups, but is not neutral with respect to a scale change in the entire distribution. The VL, on the other hand, is also readily decomposable, but it violates the Pigou-Dalton criterion. The relative merits and apparent defficiencies of various decomposable measures are well known [see for instance, Bourguignon 1979, Shorrocks 1980, Mukherjee & Shorrocks 1982] and no attempt is made to review them here . Our discussion is limited here to the Gini and Theil's entropy coefficient which we employ in this study.

The Gini coefficient, in general, is not additively decomposable in the sense that, the total Gini coefficient of a population cannot be expressed as the weighted sum of 'within' and 'between-inequality' alone.[9] Consider for example, a population consisting of n individuals with mean μ, and let y_i denote the income of individual i. Then the Gini coefficient for the n population can be given by as in eq. [2.3];

$$G = \frac{1}{2n^2\mu} \sum_{i=1}^{n} \sum_{j=1}^{n} |y_i - y_j|$$

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[9] Among various attempts to decompose Gini coefficient [Soltow 1960, Bhattacharya & Mahalanobis 1967, Rao 1969, Mangahans 1975 and Pyatt 1976], Rao proposed two types of decompositions, one based on population weights and the other income weights. Pyatt presented a decomposition of Gini coefficient with a different interpretation of the Gini coefficient.

Suppose now the population can be divided into k sub-groups and this group members n_k with mean μ_k, then aggregate value of Gini coefficient can be written as follows [Mukherjee & Shorrocks, 1982];

$$G = \frac{1}{2n^2\mu} \sum_k \left(\sum_{i\epsilon N_k} \sum_{j\epsilon N_k} |y_i - y_j| + \sum_{i\epsilon N_k} \sum_{j\epsilon N_k} |y_i - y_j| \right) \quad [2.8]$$

$$= \sum_k \left(\frac{n_k}{n}\right)^2 \frac{v_k}{\mu} G^k + \frac{1}{2n^2\mu} \sum_k \sum_{i\epsilon N_k} \sum_{j\epsilon N_k} |y_i - y_j|, \quad [2.9]$$

where G^k is the Gini value for the K-th group and this is a disaggregation of total Gini coefficient due to inequality within groups weighted by sub-group income and population shares and Gini value due to inequality between groups or due to the differences in all pairs of incomes between groups. The first term of the above can be interpreted as inequality within groups but it is not clear that the second term represents the between-group component. By definition, the between group component is the value of the Gini coefficient [G_b] for the distribution in which the k-th group receive income μ_k and that any other group h receive income μ_h.

$$G_b = n_k n_h |\mu_k - \mu_h| = \sum_{i\epsilon N_k} \sum_{j\epsilon N_k} |y_i - y_j| \quad [2.10]$$

If this equality holds, the second term of the eq. 2.9 is the customary between-group component and it is a precise decomposition of the overall Gini coefficient into within and between-group inequality.

However, for such equity to exist, the range of incomes in any group k must not overlap with that of any other group h [Mukherjee & Shorrocks 1982, Anand 1984]. But in normal circumstances this does happen and therefore empirically, the between group component is greater than the second term of the Eq. 2.9. When income ranges overlap eq. 2.9 can be written as;

$$G = \sum_k v_k^2 \lambda_k G^k + 1/2 \sum_k \sum_k v_k v_h |\lambda_k - \lambda_h| + R, \qquad [2.11]$$

where $v_k = n_k/n$ is the proportion of the population in k-th group and $\lambda_k = \mu_k/\mu$ is its mean income relative to overall mean. R is the residual or part of the Gini coefficient due to overlapping of incomes in groups. This is a decomposition of the overall Gini coefficient into three parts suggested by Pyatt [1976] and implied in the decompositions derived by Bhattacharya & Manhalnobis [1967] and Rao [1969]. The first term is the contribution of inequality within groups and second term is the contribution of inequality between groups. If there are no overlaps between the income ranges in different groups then the third term is zero; otherwise it is positive and it is difficult to interprete this term with any precision, except to say that it represents a part of inequality caused by the variations of incomes within groups.[10] This problem however does not affect Theil's measure and T can be decomposed into within and between groups whether income ranges overlap or not. When there are k groups the aggregate Theil's coefficient can be written as [Theil 1967]:

$$T = \sum_k v_k \lambda_k T_k + \sum_k v_k \log \lambda_k \qquad [2.12$$

where $T_k = \frac{1}{n} \sum \frac{y_i}{\mu} \log \frac{y_i}{\mu}$ is the Theil index of inequality of k-th group.

This is a decomposition of overall T as the weighted sum of T indices for each group [within group] and inequality between them [second term of the eq. 2.12], weights being equal to income shares of each group.

The eq. 2.12 provides the quantitative framework for evaluating the significance of inequality within and between groups. Before

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[10] Bhattacharya & Mahalanobis, 1967, interprete R as a part of within-group inequality

concluding this part, a final issue, the method of estimation of these two measures needs to be clarified.

2.2.2 Estimation of inequality measures.

All the formula specified in the text above refer to continuous distributions. In practice however, available income data are often available in grouped form [in particular the data available to us] and therefore a modified version of the formula needs to be used in actual calculations. When data are in grouped form, the Gini coefficient can be calculated from the following formula:

$$G = 1 - \sum_{z=1}^{m} p_z(Q_z + Q_{z-1}) \qquad [2.13]$$

where p_z is the cumulated proportion of population at the z-th observation of the cumulative fraction of income units and, Q_z is the cumulative share of incomes and z = 1, 2, ...,m. Where m, in terms of the Lorenz curve, is the final point in the Lorenz curve.

The above formula is however, only an approximation of the area between the egalitarian line and the Lorenz curve, which tends to understate the actual inequality: for instance, when a straight line is drawn between two points on the Lorenz curve, this line will lie above the Lorenz curve. Thus, the sum of the trapezoidal area from points [0, 0] to point [1. 1] of the Lorenz box will be greater than the integral of the Lorenz curve between the same interval. Subsequently, the Gini ratio of concentration derived from this trapezoidal approximation [TA] method will be smaller than that derived from the integration method. In other words, the former understate the actual inequality. Thus to obtain realistic estimates, it is necessary that the TA method be replaced by the integration method. However to be able to integrate the entire area under the Lorenz curve, one must know the mathematical function of that curve. If such a function is available then the Gini coefficient can be estimated on the basis of estimated parameters of the fitted function.

The literature offers two approaches to the estimation of the Lorenz curve and associated inequality measures from grouped data: one method is that of fitting a function to the entire income distribution and to derive the equation of the Lorenz curve or to estimate inequality measures directly from the parameters of the fitted function [Champernowne 1952, Aitchison & Brown 1954, Fisk 1961, Thurow 1970, Gastwirth 1972, Kakwani & Podder 1973, Salem & Mount 1974, Singh & Maddala 1976, Mcdonald & Ransom 1979]. This is an efficient method, but the difficulty with this approach is to find an appropriate function that fits well to the entire income range.[11] An alternative is to specify a functional form of the Lorenz curve and to derive the equation of the Lorenz curve [Kakwani & Podder 1973]. Then estimating the equation using actual data inequality measures can be derived as functions of the parameters of the Lorenz curve. This is the method adopted in this study and the particular functional form to be used is the one proposed by Kakwani & Podder [1976][12].

2.2.3 Estimation of the Lorenz curve and derivation of the Gini coefficient according to KP method.

The Lorenz curve depicts the relationship between the cumulative proportion of income units and the cumulative proportion of incomes received when units are arranged in ascending order of income.[13]

If $F(x)$ is the proportion of units [families or individuals] that receive incomes up to x, and $F_1(x)$ is the proportion of total income received by the same units, the Lorenz curve is then the graphical

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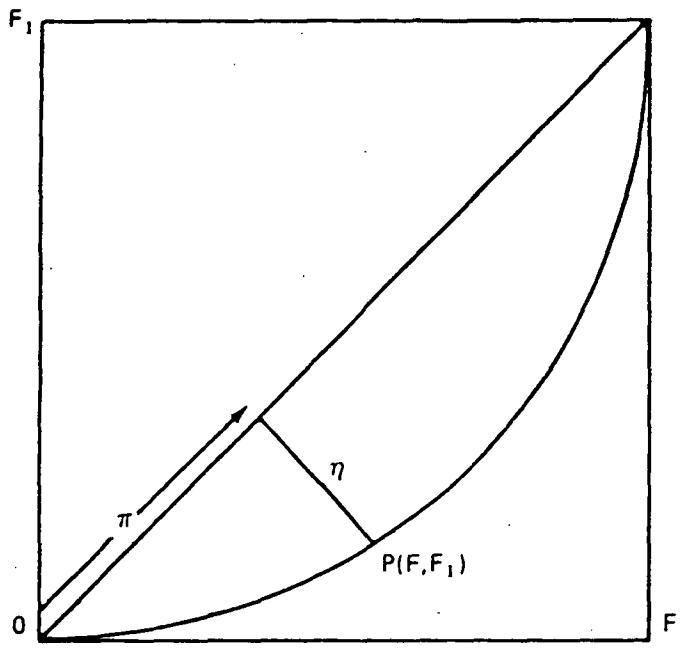
[11] Numerous density functions have been considered as models for the distribution of incomes. The lognormal form, in general, has been considered as a reasonable density [Aitcheson & Brown 1957]. However, the study by Salem & Mount [1974] who considered lognormal and gamma functions showed that gamma fits better than lognormal. Sing & Maddala [1976], on the other hand, demonstrated that their functional form, [generalized Pareto function], gives a better fit to the data than lognormal or gamma functions.

[12] Jain Shail fitted this function for over five hundred different income distributions of 75 countries and found a good fit for most of them, see for detail, Jain Shail [1975].

[13] For formal definitions of underlying probability functions see Kakwani [1980].

presentation of relationship between F(x) and $F_1(x)$. This curve is shown in the figure 2.2.

Figure 2.2



Supposing that P is any point on the curve with coordinates (F, F_1), the line from this point perpendicular to the egalitarian line, called η, would have the length $1/\sqrt{2}$ (F-F1), and the segment of the egalitarian line, called π, would have the length $1/\sqrt{2}$ $(F+F_1)$. The equation of the lorenz curve in terms of π and η could be now written as:

$$\eta = f(\pi) \qquad [2.14]$$

where π varies from $0-\sqrt{2}$. The particular Lorenz equation proposed by Kakwani & Podder is in the following form;

$$\eta = a\pi^{a} (\sqrt{2} - \pi)^{\beta}, \; a > 0, \; \alpha > 0, \text{ and } \beta > 0 \qquad [2.15]$$

where a, α, and β are parameters to be estimated.

From grouped observations of a given income distribution, it is possible to obtain r_t and y_t as the consistent estimators of π and η, respectively, where,

$$r_t = [p_t + q_t] \; / \; \sqrt{2} \text{ and}$$

$$p_t = [p_t - q_t] \; / \; \sqrt{2}$$

where p_t and q_t are the observed cumulative proportions of income receiving units and the observed cumulative proportion of income received respectively. The parameters of the Lorenz equation can then be estimated from the following log-transformed linear regression equation:

$$\log y_t = a' + \alpha \log z_t + \beta \log (\sqrt{2} - z_t) + \omega_{1t} \qquad [2.16]$$

Where $a' = \log a$, and ω_{1t} is a random disturbance.

When the parameters are known, the Gini coefficient can be estimated from the following integral:

$$G = 2\int_0^{\sqrt{2}} f(\pi)\, d\pi, \text{ and for the specific curve defined in [2.15]}$$

is;

$$G = 2\int_0^{\sqrt{2}} a\eta^{\alpha} \, (/2 - \pi)^{\beta} \, d\pi \qquad [2.17]$$

$$= 2a(\sqrt{2})^{1+\alpha+\beta} \, B(1 + \alpha, \; 1 + \beta)$$

where $B(1 + \alpha, 1 + \beta)$ is the Beta function, the value of which could be either obtained from published tables or can be computed.

One may question the rationale of using this complicated and very time consuming method in estimating the Gini coefficient as the number of income classes specified in survey reports are relatively large, and income ranges are defined in narrow margins [cf. Tables

A.1-4, Appendix. A]. Therefore, even if one uses grouped data, the probable under estimation of income inequality may be very small indeed. Thus, it might appear that new estimates are not worth the effort. However, the advantages of the KP method are not confined to obtaining efficient inequality estimates, the estimated equation of the Lorenz curve can be used to derive various other estimates such as percentiles [and of course, to enumerate the entire distribution if necessary] and basic features of the frequency distributions such as skewedness. Moreover, the KP method makes the comparison of inequality values between different points in time more compatible and reliable because the probable differences in the frequency distributions over time resulting from changes in price levels are avoided. Perhaps the greatest advantage of this method is that one can estimate the percentile or fractile income shares, which provide an error free measure to evaluate the inter-temporal change in the size distribution of incomes [ESCAP, 1972], in an efficient manner.[14]

Finally, the method of estimation of Theil coefficients needs some comment. Theil's coefficient is highly sensitive to the number of income classes chosen and the number of income recipients included in each class. The failure to include a similar number of income recipients in each class has a significant influence on the value of the index, i.e., it will not reach the maximum value. This is particularly important for a comparative analysis of income distribution and in decomposing overall income inequality into

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[14] The estimation of percentiles of a given distribution using the estimated parameters of the Lorenz curve is carried out as follows: Recall the equation for Lorenz curve defined in [2.15]; which can be written as;

$$\eta = a\,\pi^{\alpha}\,(\sqrt{2} - \pi)^{\beta} = \sqrt{2}F - \pi \quad \text{or as;}$$

$$a\,\pi^{\alpha}\,(\sqrt{2} - \pi)^{\beta} + \pi - \sqrt{2}F = 0$$

Now above eq. can be solved for π for given values of F [using an algorithm for solving non-linear equation]. Once the value for π is obtained, then given value of any F, i.e., proportion of units of recipients, the corresponding income shares [F_1] can be readily obtained.

sub-groups.[15] Thus, in estimating Theil's coefficient the percentile distributions estimated on the basis of KP methods will be used as the reference. This gives an equal number of recipient units and an equal number of income recipient units in each class and the formula use in computation is then;

$$T = \sum_{k=1} y_k \log \frac{y_k}{x_k} \qquad [2.18]$$

where, y_k is the income share of k-th decile [k = 1....10] and x_k is the K-th decile group of recipient units. Once estimates of income inequality for each group are obtained, the decomposition requires only the knowledge of sub-group mean incomes and numbers.

2.3 Statistical sources for estimation of Income Distributions

As noted in the introduction, there is no single source of data that can be used for studying the size distribution of incomes. Such data needs to be derived or estimated using a wide variety of data sources. Four sources of data have been used by researchers in estimating the size distribution of incomes, namely; population census, income tax returns, composite sources based on national income data and data collected from nation-wide sample surveys.

Among different data sources, income tax returns or fiscal data were the major source used in the early studies of income distribution. The first and the best-known empirical study of income distribution of Pareto [1897] for example was based on income tax returns. This data base, as a source for estimating the size distribution of incomes, is subject to a number of limitations. First, in every country income tax laws recognize a minimum exemption limit, thus estimated incomes based on income tax returns are most likely to omit the lower income groups. Moreover, the concept of taxable income is usually narrower than the personal income concept. For example, in most countries the imputed value of consumption and owner occupied dwellings is not included in the definition of taxable

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[15] For details, see Van Ginneken [1978 and 1980].

income employed in income tax assessments. But these items are an essential part of the concept of personal incomes. Furthermore, some other elements of income could escape measurement through tax loopholes, exemptions, preferential tax treatments. In addition, these data are also affected by major response errors such as, fraudulent under reporting of incomes by upper income groups. Therefore, income tax returns alone as a source of data for studying the size distribution of incomes of a population are of limited significance.

The population census, on the other hand, may be considered as a very useful source of data provided they include information on income. However, in many countries and developing countries in particular, census data is often incomplete and does not include information on incomes. In such cases, the census would only be useful in providing information on the size of the population.

The composite sources have no single origin. The process of estimation of income distribution is based primarily on national accounts. First, national accounts data are broken down into factor components such as wages and salaries, self-employed incomes, transfer payments and incomes from property. Then, the size distribution of incomes within each category is estimated with reference to other sources. For example, the size distribution of wage incomes may be estimated using provident fund records or labour surveys; incomes of self-employed persons using income tax returns and transfer income from social security registers. In practice however, it is unlikely that one would find all relevant information about the total population under each category and in particular in developing countries where, additional information is difficult to find. Thus, this tedious process of collecting relevant information and estimating income distribution presents some difficulty. Furthermore, the additional data from other sources may also be subject to wide margins of error. Therefore, the accuracy and the reliability of incomes estimates based on composite sources is always limited.

Finally, the special surveys designed to obtain information on personal income is the single data base frequently used in studying income distribution in both developed and developing countries. These surveys alone may be used to study income distribution or can be used as a supplementary source to estimate income distributions based on other data sources, such as income tax returns. The survey data are more flexible than any other source cited above; the surveys can be designed to encompass all the income groups [which income tax returns usually fails to do], a comprehensive definition of personal incomes can be employed in collecting income data, and it is relatively easier to gather income data than any other source. However, the reliability of income data gathered from sample surveys is not necessarily superior to the other sources. Two margins of error affecting the reliability of survey data are the sampling errors arising from insufficient representativeness of all the income groups, and non-sampling errors arising from faulty investigations and errors which occur in data processing and poor response. Both of these errors can be reduced by sound statistical design and management and administration of the surveys. However, it is possible that income estimates based on survey data contain unknown margins of errors as they are based on samples rather than the total population. Nevertheless, the advantages of this method of collecting data are sufficient to offset their drawbacks.

In Sri Lanka, if one wishes to study the pattern of the size distribution of incomes there is no choice among alternative data sources but sample surveys. Neither income tax returns nor the population census provide sufficient information on personal incomes. Though income tax data are available on an annual basis for a very long period of time, both coverage of incomes and population is very limited. For example, the proportion of total income recipients covered by income tax returns is approximately 5 percent of the total labour force accounting for just over 3 percent of the total national income over the 1965-75 period [Sessional Papers, X1, 1976]. On the other hand, population census data are available from as early as the fourth decade of the 19th century but they do not provide information on personal incomes.

There is a relative abundance of survey data which provide ample information on personal incomes in Sri Lanka. There are two major series of nationwide surveys conducted by the central Bank of Ceylon [Sri Lanka] and the Dept. of Census & Statistics.[16] Under the Central Bank series, known as Consumer Finance Surveys [CFSs], currently five published survey reports providing household income and expenditure data are available; 1953, 1963, 1973, 1978/79 [1979] and 1981/82 [1982]. The results of each of these have been published in two parts, first [CFS. 1] provides detail on methods and a summary of observations and second [CFS. 11] contains statistical tables. Under the series of nationwide surveys conducted by the Dept. of Census & Statistics, the Socio-economic survey of 1969/70 and 1980/81 provide information on household income and consumption.[17]

For the purpose of this study we rely on CFSs as the major source of data which provide income and expenditure data for five separate years from 1953 to 1982.[18] Although, it is possible to supplement the analysis using income and consumption data gathered from Socio-economic surveys, they are not strictly comparable with CFSs. In particular, the definition of income and the recipient unit employed in Socio-economic surveys are different from CFSs. The incomes covered in the 1969/70 survey for example, did not include certain in kind payments such as the imputed value of the free rice ration provided by the Government. Further published data of this survey reports only cash incomes. Moreover, CFSs employed two recipient units, the individual income receiver and the spending unit. But in Socio-economic surveys instead of spending units, income data has been gathered at the household level.

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[16] In addition to these two major data sources, there are two other surveys, Rural credit and indebtedness of 1959 and 69 which provide information on personal incomes.

[17] According to best of our knowledge, only 1969/70 survey results were published. However, it appears that original data tapes of 1980/81 survey is available for researchers. For example, the study by Glewwe[1986] is based on these two surveys.

[18] It should be noted that we do not wish to use 1953 survey data for this study as it is not strictly comparable with latter surveys.

2.3.1 The Consumer Finance Surveys, their reliability and comparability.

A meaningful interpretation of the size distribution of incomes at a given point in time and over time requires data sources which must be both reliable and comparable. The reliability of data collected in any survey depends on a number of factors, which can be classified broadly as technical and non-technical. Among technical factors, the statistical design is the most crucial, the surveys need to be designed using sound statistical techniques. This alone is not sufficient: a reliable and adequate sampling frame is necessary to select the sample. Surveys must be administered efficiently and data collected must be processed carefully. Among non-technical factors, the response is the most crucial factor affecting the reliability of data. Comparability of data, on the other hand, depends among other things on the concepts and definitions used in different surveys, the recipient unit and the reference period employed in collecting key data. If the definitions and concepts used in gathering key data are different from survey to survey for example, no meaningful comparison can be made.

Sample design and basic features of CFSs.

All five CFSs, except 1953, employed a two to three-stage stratified sampling scheme to select the sample. An adequate sampling frame was provided by population census and other sources.[19] The foremost stratification was the sector, viz; Urban, Rural and Estate. The total population was divided into four zones and each zone was divided into three sectors, urban, rural and estate consisting of 12 strata. Within a stratum the primary sampling units were drawn with a probability proportional to the number of

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[19] For 1963 survey sampling frame was based on the household lists maintained by the government for the purpose of administration of universal rice rationing scheme. For 1973, 79, sampling frame was based on 1971 census of housing and population and for 1982, census blocks prepared prior to the conducting of census of housing and population in 1981.

household in it. The second stage units, the households, were selected using circular systematic sampling.[20]

On the whole, the procedure used for sample selection appear well conceived and are in all probability well-executed.[21] Moreover, the administration of surveys was done by trained and experienced investigators under very close supervision of Central bank research staff and therefore, technical errors may expect to be minimal.[22] Further, all surveys received a very high response from the sampled households, in the 1963 survey for example, the response rate was 96.1 percent and in subsequent surveys they were 98, 99 and 99.1 percent respectively.[23]

Comparability of Survey data.

As pointed out earlier, the comparability of survey data depends, among other things, on the concepts and definitions used in gathering key data. The definition of incomes used in all surveys from 1963 onwards was comprehensive, identical and closely resembles Simon Haig's definition of personal income. It includes incomes from all sources; work, property and transfer incomes inclusive of the imputed rental value of owner occupied dwellings and food produced and consumed at home. Similarly, recipient units employed in all four surveys were the same; while the household was the ultimate sampling unit, two types of recipient units; 'individual income receiver' and 'spending unit', have been employed in gathering income and

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[20] The 1953 survey is an exception. It adopted the procedure of 'cluster sampling' [CFS, 1953]. Further, the stratification used in 1953 survey was estate and non-estate.

[21] For details on the sampling techniques see CFSs.1 1963-1982.

[22] Some assesment about possible sampling errors may be made using statistical test on key variables. The 1979 and 82 survey reports provide some details about the estimated errors [including confidence levels] of six key variables such as average number of persons per household, income receivers per household, proportion employed, and average incomes for three different recipient units. The estimated errors are very low and assuars the randomness. For details, see CFS. 1. [Appendix], 1979, and Table 1.3, CFS. 1, 1982.

[23] See for details, CFSs 1, 1963-82.

consumption data. A spending unit is either the whole household or part of it. It is defined as consisting of one or more persons who are members of the same household and share major items of expenditure. Moreover, surveys from 1963 onwards use an identical stratification and therefore technically, they are strictly comparable.

Despite sound statistical design, high response rates and apparent comparability between surveys, certain biases in income and consumption data gathered from surveys remain. There are two kinds of biases affecting both reliability and comparability: first, biases arising from reference periods upon which the data were collected and timing of surveys. Second, biases arising from response errors such as, voluntary and involuntary under/over statement of income and expenditure.

With respect to the reference period, there are two conflicting considerations [Rajaraman, 1976]. First, since the average respondent may not be able to provide totals for what he earns or consumes, and these totals must therefore be arrived at through careful accounting of each component, the period of reference must be short enough so that information can readily be recalled. Second, at the same time, the reference period must be long enough so that collected data are free from seasonal or other transitory fluctuations.

The second consideration is the most important with respect to income data, because income in general is subject to fluctuations in the short run. On the other hand, consumption in general, is much less subject than income to seasonal variations. Therefore, the shorter the period of reference, the greater the accuracy of recall so that consumption data are more easily and reliably collected than income data. But for income data the reference period must be long enough, but very long reference periods are too long for reliable recall [Rajaraman 1976].

Given these considerations, the reference period of seven days [the reference period used in all four surveys of 1963-82] used to collect consumption data [food], may be considered as adequate for gathering reliable consumption data. However, the question remains whether the shorter reference periods such as one month [1979 and 82 surveys] to two months [1963 and 73 surveys] are sufficient to gather unbiased income data. Given the fact that the 1979 and 82 surveys were spread over a twelve month period, though the reference period was short as one month, the probable seasonal bias inherent in income data gathered from these two surveys may expected to be small. The 1963 and 73 surveys, on the other hand, employed a much longer reference period- two months- for gathering income data, but these surveys did not spread over a long period and all the households were surveyed at the same time.[24] Therefore, it is possible that relatively high seasonal biases to be inherent in income data gathered from 1963 and 73 surveys compared with 1979 and 82 surveys.

The extent to which income data gathered on the basis of a reference period as short as one or two months are distorted by seasonal fluctuations, is quite difficult to assess. One way of assessing any such bias is to compare the income estimates based on a shorter reference period with a longer period of time. Such a comparison is facilitated by the alternative income data given in all four surveys which are based on a much longer reference periods. The 1963 survey for example, provides income data, in addition to a two month reference period, for 12 months [i.e., incomes received during the twelve months prior to the survey date]. All other surveys provide alternative income data based on a six month reference period.

The comparison of the two estimates indicate that in general, average incomes based on the shorter reference period are relatively higher than the average income estimates based on the longer reference period. For example, the ratio between average incomes based on the shorter and longer reference periods in each surveys were 1.06, 1.07,

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[24] The 1979 and 82 surveys field works were carried out in four rounds covering a period of twelve months.

1.08 and 1.05 respectively. These differences, though small, would probably reflect the seasonal biases implied in the income data gathered on the basis of shorter reference periods. Perhaps the most important fact evident from these data is that, although the 1979 and 82 surveys were spread over a long period of time [12 months] compared with 1963 and 73 surveys where all households were surveyed simultaneously, the difference between the income estimates of shorter and longer reference periods are not significantly different. This would suggest that the seasonal bias, if any, that may have resulted from differing survey and reference periods is not significantly different between surveys.

Among the biases arising from response errors, two kinds of probable biases inherent in survey data are repeatedly mentioned in survey reports, namely, under statement of incomes and over statement of expenditure. The probable under estimation of incomes occurs at two levels, under reporting of incomes due to memory lapses, [involuntary] and deliberate [voluntary] under reportings due to fear of taxation. These biases arise in relation to certain sources of income, mainly incomes from properties- dividends and rent- and in the case of incomes from self and casual employment [CFS.1, 1982]. Assuming that most of the income recipients with no regular employment are in the lower income range and the recipients of property incomes are at the upper end of the income scale, it is possible that both incomes among lower income groups and upper income groups is under reported. With respect to consumption expenditure, the direction of bias is different. Over estimation in this respect is largely among the lower and middle income groups. As survey reports indicate, expenditure among lower income groups could be overstated due to the reluctance of poor households to divulge their actual consumption, when such consumption is considered as low.[25] Further, middle income groups tend to overstate conspicuous consumption for reasons of prestige. The upper income groups, on the other hand, tend to under state their actual expenditure and in particular, consumption

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[25] For details, see CFS. 1, each year.

of durable items.[26]

Despite these probable biases; seasonal and over/under reporting, one can use these data for comparative purposes, provided that the direction of bias is the same in each survey. Given the fact that the probable seasonal bias implied in income data among four surveys are small and the direction of bias [as evident from relative consistency of income ratios] is almost identical, despite the variations in reference periods and the time period upon which these surveys were gathered and conducted, the comparability of survey data remains intact.

However, the extent to which biases arising from response errors distort the comparability of surveys is quite difficult to assess. There is no particular method one can employ in order to evaluate such biases. Perhaps a tentative way of evaluating them is to compare the income expenditure relationship. For example, one can measure the total income and expenditure ratios as a guide to infer certain tentative conclusions about the direction of bias. Let us assume, a priori, both income and expenditure data are biased to an unknown degree and the ratio between household income and expenditure is equal to unity at the initial point of inquiry. Then suppose, the bias towards under reporting of incomes increased between two points in time whilst the bias in expenditure remained unchanged or decreased. Then one should observe a rise in the expenditure/income ratio at the second point in time compared with first. Similarly, if there is no significant difference in the bias of income or expenditure then one should observe no significant change in the income expenditure relationship.

In this context, consider the per capita expenditure/income ratios estimated from the four different surveys, which were, 0.99,

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[26] The implication of these biases is that, income inequality will be biased towards greater inequality and expenditure inequality will be biased towards greater equality. Alternatively, actual income inequality will be over stated and actual expenditure inequality will be under stated.

1.0, 0.95 and 0.95 respectively. In 1963 and 73, the expenditure/income ratios were unity and in 1979 and 82, they are marginally lower than unity. These data indicate some change in the bias of income and expenditure data between 1973 and 1979 surveys, namely a probable increase in the overstatement of expenditure in 1979 relative to 1973. It is also possible that such differences are due to probable under-statement of incomes in 1973 survey compared with 1979. What is important however, given the negligible difference between expenditure/income ratios between surveys, there is no strong evidence to suggest that the probable bias implied in income and consumption data have changed to such an extent that the comparability of data is subject to serious doubt.[27]

To sum up, all four surveys from 1963 onwards can be considered as reliable and comparable data set that can be used to study income and consumption patterns of the Sri Lankan population. It is possible that certain biases in both income and consumption data prevail in surveys of this kind. So, one may not be able to measure

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[27] This is an important finding because Glewwe [1986] and Bhalla & Glewwe 1986] in their study on income distribution in Sri lanka reject the income data arguing that there is a tendency to increase the bias towards under reporting of income between 1970 and 1981. It should be noted that this conjecture was based on different set of data, the socio-economic surveys of 1969/70 and 1980/81. Income and expenditure ratios in 1969/70 survey which amounted to 1.08 increased to 1.35, i.e, the difference between income and expenditure increased from 8 percent to 35 percent. Glewwe claims that this discrepancy is due to the increased under reporting of incomes. This could, of course, might have due to either increased over reporting of expenditure or under reporting of incomes. Similarly, this could have been due to reasons other than the increased biases and for example, due to errors of investigation or some conceptual differences. Details about 1980/81 survey is not available, but the discrepancy in incomes and expenditure evident in 1969/70 survey was due to fact that the income data ignored one important item, the value of free rice ration as a part of income was ignored. But in imputing the value of food consumption, this item would have naturally entered in expenditure calculations. Moreover his assertion that the increased under reporting of incomes due to introduction of mean tested food stamp scheme is flawed and unconvincing. For detail arguments supporting this view see, Divisekera & Felmingham, 1987, Jayasooriya & Ravallion, 1987].

exact income or expenditure patterns of the population with a hundred percent accuracy and as Kakwani notes, the measurement of socioeconomic phenomena, which these surveys provide, can never be exact [1986, p.266]. What is important however, the assesment of probable bias between surveys does not cast serious doubt on their reliability or comparability.

2.4 Concluding remarks.

This chapter addressed the conceptual and methodological issues relevant in studying income distribution with the object of providing a background for the choice of concepts and methods to be employed in the study. The major issues discussed were the concept of income, the unit of analysis, the measurement of income inequality and data sources . However, few options remain for the researcher as most of the concepts and definitions were already set out by the data collecting agency. The following concepts and definitions will be used throughout this study:

The concept of income used in this study is the one employed in all four surveys; income from work, property, transfer payments inclusive of imputed value of owner occupied dwellings.

The term, Personal income distribution refers to distribution of incomes among individual income receivers defined as persons who receive incomes from any source; work, property, transfers whether received in cash or as in kind payments. Family income distribution refers to the distribution of incomes among spending units and per capita income distribution refers to distribution derived by dividing family income by the corresponding number of members in a family [spending unit]. The income unit is Sri Lankan Rupees [Rs] and the general reference period is one month.

With respect to inequality measures [Gini and Theil's T] the terms 'coefficient', 'index' and 'measure' will be used interchangebly throughout this study. Unless otherwise mentioned, all the Gini coefficients reported in this study are based on the KP method.

CHAPTER THREE

THE DISTRIBUTION OF PERSONAL INCOMES IN SRI LANKA: An over view

This chapter, consisting of five sections, analyses the pattern and change of size distribution of personal incomes in Sri Lanka over the 1963-82 period. The basic unit of study is the individual income recipient, defined as "a person who receives income either from work or as a transfer payment inclusive of imputed value of income in kind".

In the first section a summary of the frequency distribution, and basic statistical properties of income observations is presented. In section two, changes in relative income inequality and size distribution of incomes over the 1963-82 period are identified. Section three attempts to explain observed changes in the context of theory and empirical evidence relating to growth and income distribution in developing countries. In section four an alternative explanation of underlying changes of income inequality is presented whilst the major findings are presented in the final section.

3.1 The Frequency Distributions of personal incomes: Basic properties

Tables A.1-4 of Appendix-[A] present the frequency distribution of personal incomes derived from the Consumer Finance Surveys [CFS] in the years 1963, 1973, 1979[78/79], and 1982[81/82]. These frequency distributions are further summarized and presented in figures 3.1 and 3.2 whilst summary statistics are reported in Table 3.1.

As the graphs indicate, all the observed distributions are skewed in the positive direction. They are close to lognormal being characterized by the long tail tapering off to the right of the frequency diagrams. A large proportion of income recipients were clustered around the lower end of the income scale, whilst a small proportion of income recipients were concentrated at the upper end.

Figure 3.1 Distribution of Income of Income Receivers —1963 and 1973

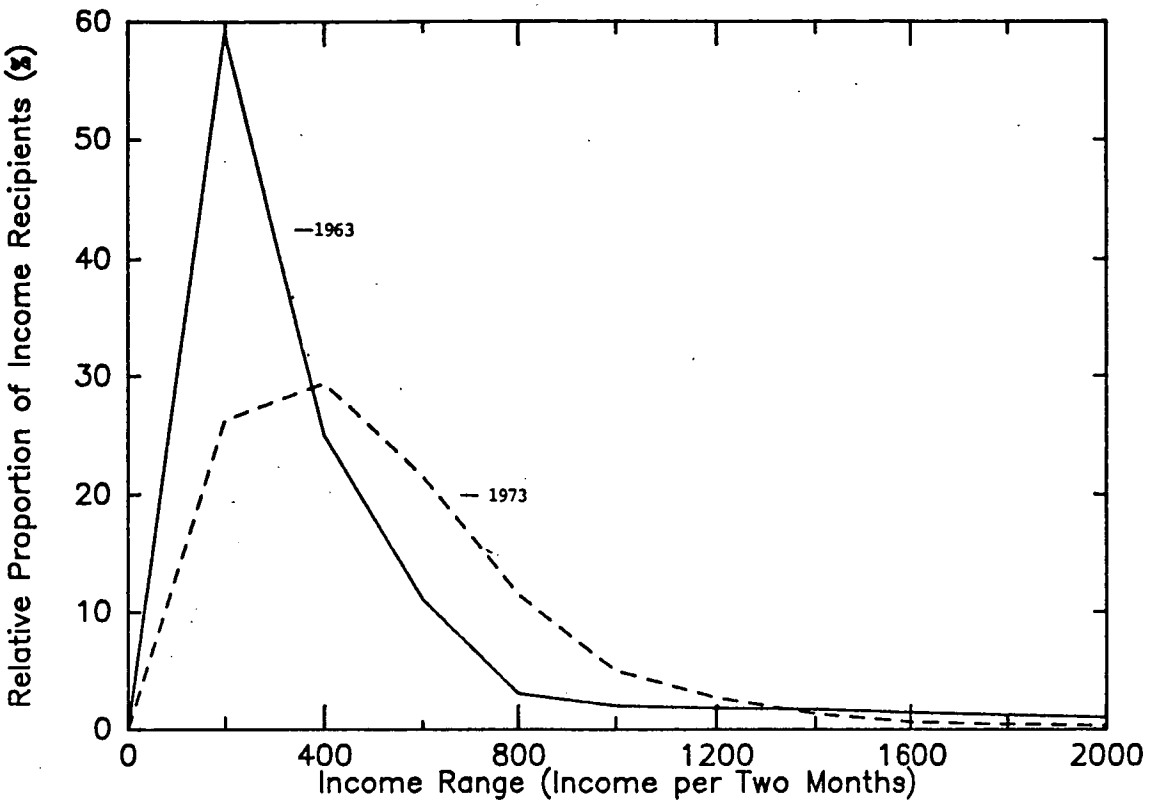

Figure 3.2 Distribution of Incomes of Income Receivers — 1979 and 1982

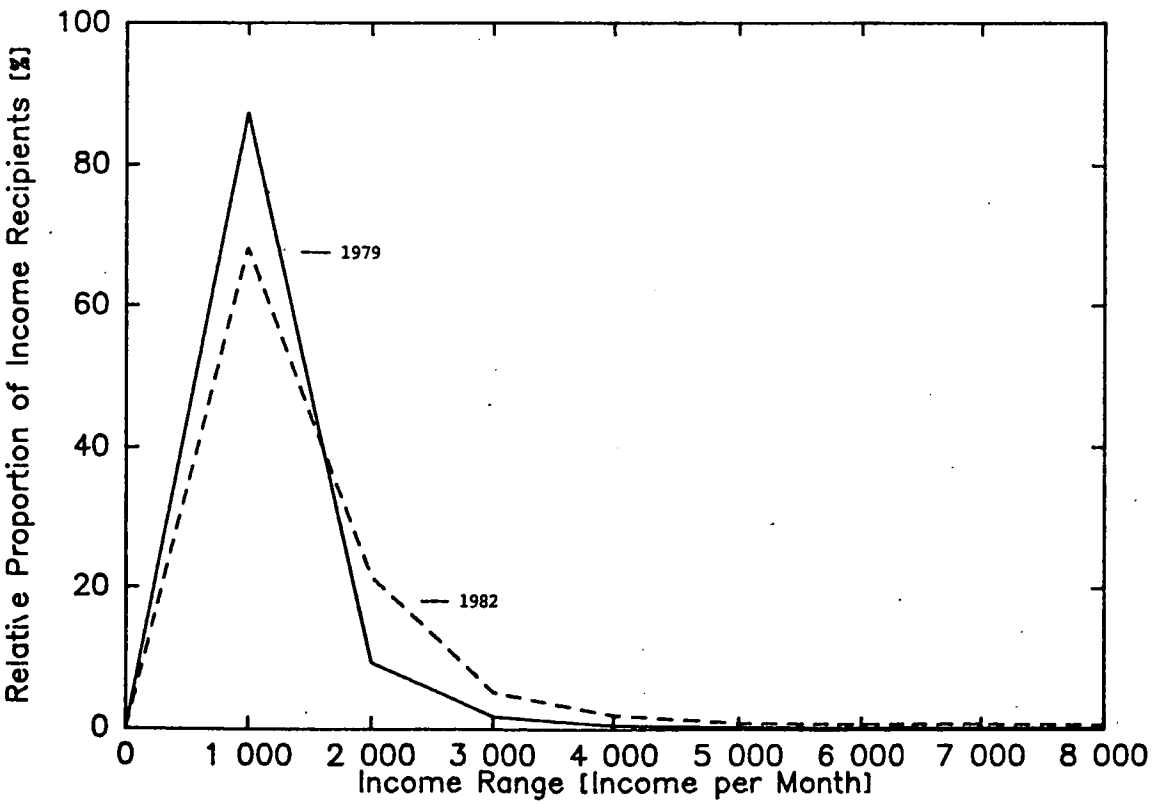

Table 3.1
Distribution of personal incomes-Summary statistics

	1963	1973	1979	1982
Mean[Rs. per month]	134	228	616	1111
Median [Rs. per month]	83	180	408	612
Proportion of Income Recipients [%] with incomes below mean	67.8	62.3	68.6	68.1
% of total incomes received by the above group	32.0	33.0	32.0	31.0

Source : Calculated from data in Tables A.1-4 [Appendix-A].

Although the distribution is not bimodal, a relatively large proportion of income recipients received incomes less than the national average. In 1963 for instance, this proportion amounted to approximately 68 percent of the total income recipients and in 1973,1979 and 1982, the corresponding proportions were 62, 69 and 68 percent respectively. The proportion of total incomes accruing to this group however, was far lower than the corresponding population shares, for instance, in 1963, 68 percent of the income recipients whose average incomes were below the national average received only 32 per cent of the income of the total population. In 1973, 1979 and 1982, corresponding income shares were respectively 33, 32 and 31 percent. The high concentration of incomes among a fewer number of recipients at the upper end of the income scale, and the predominance of low income recipients are the salient features of all observed distributions.

3.2 **Relative Income Inequality**

Table 3.2 presents the estimates of summary measures of relative income inequality, namely the Gini and Theil coefficients, for each observed distribution. The highest degree of inequality is seen in the terminal year of the study 1982, where the Gini coefficient is 0.52 and the lowest in 1973 with a Gini coefficient of 0.41. The degree of inequality evident in 1963 and 1979 is identical, the estimated Gini coefficients for each distribution having a value of 0.50.

Table 3.2

Degree of inequality and changes over time

	1963	1973	1979	1982
Gini	.5097	.4124	.5085	.5219
Rate of change[%]		-14.3	+16.5	+2.6
Theil	.4346	.2726	.4146	.4564
Rate of change[%]		-34.7	+52.1	+9.6

The degree of inequality measured by the Theil's coefficient differs from that of Gini coefficient. However, the ranking of income inequality provided by the T measure is consistent with G. Both indices indicate a significant change in relative income inequality, a decline between 1963-73 and a rise during the post-73 period. These changes can be verified further by referring to the Lorenz diagrams drawn for each distribution between 1963-82.

The Lorenz curves for 1963 and 1973 are graphed in figure 3.2; the 1973 curve lay above the 1963 curve and closer to the egalitarian line an indication of improved income equality in 1973 compared with 1963. However, figure 3.2b, where Lorenz curves for 1973 and 1979 are graphed, indicates the opposite, the Lorenz curve for 1979 laying below the 1973 curve. A further shift of the Lorenz curve away from the egalitarian line is evident in 1982 implying a worsening of inequality from the level existing in 1979 [figure 3.2c].

In examining changes in the overall income inequality which occurred between sub periods, it is pertinent to ask a number of questions: Who has gained and lost? For example, is the reduction in income inequality evident between 1963-73 due to the improved incomes of the lower income groups or the middle income groups? To answer these questions it is necessary to examine income positions of different segments of the population between two points in time. However, before proceeding to such details a comment is justified on apparent changes in income inequality evident from summary measures.

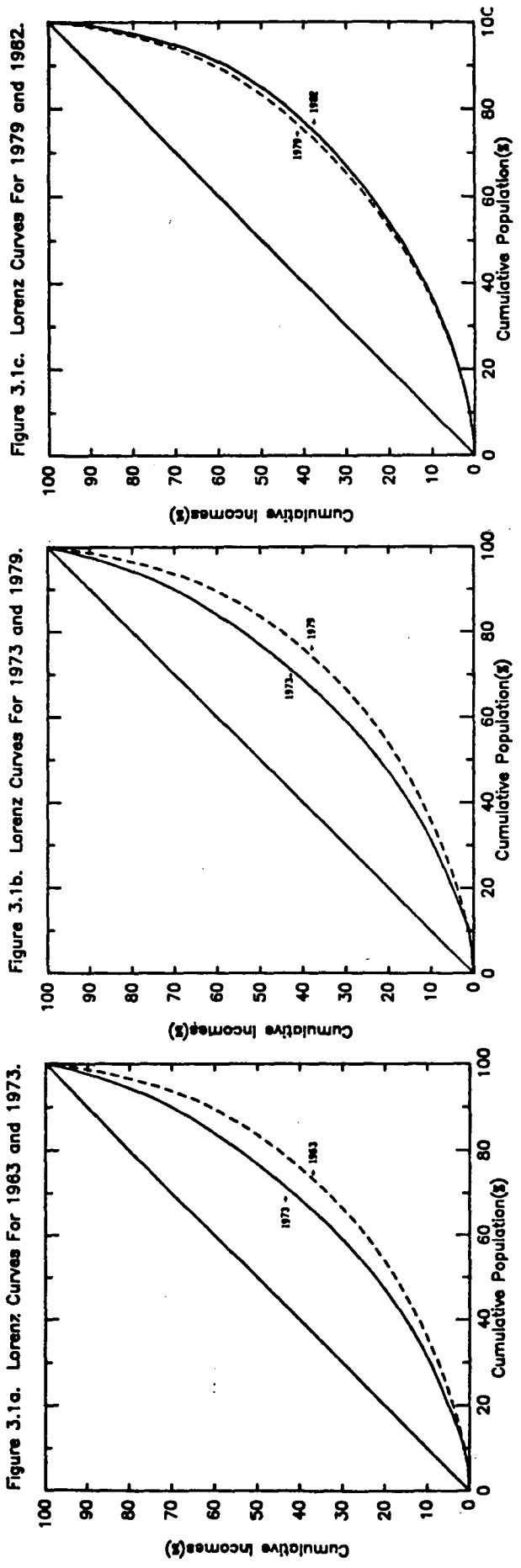
Figure 3.1a. Lorenz Curves For 1963 and 1973.
Figure 3.1b. Lorenz Curves For 1973 and 1979.
Figure 3.1c. Lorenz Curves For 1979 and 1982.
Cumulative Income(%)
Cumulative Population(%)
0
10
20
30
40
50
60
70
80
90
100
1963
1973
1979
1982

The degree of inequality measured by the Gini coefficient indicates a 19 percent decline in overall inequality between 1963 and 1973, and the Theil coefficient a 34 percent decline. Between 1973 and 1979, the Gini coefficient rises by 23 percent and Theil's measure by 52 percent. The Gini coefficient increases by 2.6 percent between 1979 and 82, and Theil's measure by 9.6 percent. Thus, in each sub period the rate of change of inequality implied by the Gini measure is lower than that of the Theil measure. In view of the sensitivity of each of these measures to the change in the size distribution of incomes [Champernowne 1974] two tentative conclusions may be drawn on the changing patterns of income inequality over the 1963-82 period: Between 1963 and 1973, the size distribution of personal incomes seems to have changed in favour of the middle and lower income groups. A relatively higher rate of decrease in the Theil coefficient which is highly sensitive to changes in extreme incomes[1] compared with the Gini, leads to this inference. Similarly, a relatively high rate of increase in the Theil coefficient over the subsequent periods 73-79 and 79-82, implies that the changing patterns of distribution of incomes have been biased towards the upper income groups.

3.2.1 **Changes in the size distribution of incomes**

Table 3.3 presents the size distribution of personal incomes by percentiles; column.1 gives the percentage of ranked income recipients by decile groups and column.2-5, the percentage share of total incomes accounted for by each decile. Columns 6-8 present levels of change in the corresponding income shares between sub-periods.

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[1] The obvious implication is the value of Theil coefficient become smaller, in cases where a particular distribution is characterized by larger proportion of the income recipient concentrated around the less extreme income ranges (see chapter 2).

Table 3.3
Size Distribution of incomes by ranked income recipients.

Deciles	Relative income shares [%]				Level of change[%]		
	1963	1973	78/79	81/82	63-73	73-79	79-82
Lowest	1.17	1.80	1.20	1.21	.63	-.60	.01
2nd	2.70	3.17	2.56	2.49	.47	-.61	-.01
3rd	3.56	4.38	3.60	3.47	.82	-.78	-.13
4th	4.57	5.70	4.76	4.61	1.13	-.94	-.15
5th	5.55	7.10	5.93	5.57	1.55	-1.17	-.36
6th	6.82	8.75	7.29	6.93	1.93	-1.82	-.36
7th	8.98	10.56	9.12	8.56	1.58	-1.44	-.56
8TH	11.46	12.65	11.23	10.64	1.19	-1.42	-.59
9TH	16.01	15.91	115.26	14.82	-.01	-.65	-.44
Highest	39.24	29.98	39.05	41.70	-9.26	9.07	2.65

Source: C.F.S Reports 1963-82.

In 1963, seventy percent of the total income recipients [the lower seven deciles] received incomes less than the corresponding population shares and the cumulative shares of total incomes accrued to this group was only 33 percent. In contrast, the share of total incomes accrued to the top ten percent of the income recipients was 39 percent, well over the cumulative income share of the lower seventy percent of the income recipients.

The 1973 distribution exhibits considerable differences when compared with 1963. For example, the relative income share of the top 10 percent of income recipients in 1973 accounted for only 30 percent of the total incomes compared with 1963 [39 percent], whilst the number of the deciles falling below their corresponding income share reduces to 6 compared with 7. However, the 1979 and 82 distributions are similar to that of 1963, with the number of deciles with income shares lower than their corresponding income shares identical in all three years and with the percentage share of incomes accruing to the top decile being in the range 39-42.

A significant redistribution of incomes, from upper income groups to lower income groups, is evident between 1963-73; the relative income share of the top 20 percent of the income recipients declined from 55.34 to 45.39 percent whilst the relative income shares of the lower 80 percent improved. It is noteworthy that the

readjustment of relative income shares taking place in each decile group between 1963 and 1973 indicates that the middle income groups have gained relatively more than the lower income groups. For example, the cumulative share of incomes of the lower four deciles rose by 3.05 percentage points compared with the middle 4 deciles which experienced a 6.14 percentage points increase.

The changing patterns of income distribution in favour of lower income groups evident between 1963-73 was reversed in the post 73 period. Between 1973 and 1979, the relative income shares of the lowest to the ninth decile declined whilst the relative income share of the top decile rose. The relative income shares of the middle income earners declined at a relatively higher rate than the lower income groups. The cumulative income share of the middle four deciles for example, experienced a 6.2 percentage points decline compared with a 2.9 percentage point decline in the cumulative income shares of the lower four deciles.

Changes in relative income shares between 1979 and 1982 reflect a continuation of the trend prevailing over the 1973-79 period. The income share of the top 10 percent of income recipients continued to rise, i.e from 39.05 in 1979 to 41.70 percent in 1982, with the exception of the lowest one, the income shares of the lower deciles deteriorated further.

The pattern and changes of distribution of personal incomes are further viewed in the Table 3.4, where the emphasis is placed on absolute incomes: columns 2-4 present the mean income [expressed in 1963 constant prices] of each decile group of income recipients and columns 5-7, their changes between different points in time.

Table 3.4
Mean income per decile [Rs.per month at 1963 constant prices]

Decile	Average monthly income[Rs.] 1963	1973	1979	1982	Percentage Change [%] 63-73	73-79	79-82
Lowest	15.64	29.40	26.57	29.16	87.97	-9.62	9.75
10-20%	36.09	51.78	56.69	62.22	43.45	9.47	9.75
20-30%	47.59	71.54	79.72	87.50	50.32	11.42	9.75
30-40%	61.09	93.11	105.41	115.69	52.39	13.21	9.75
40-50%	74.20	115.97	131.32	144.13	56.30	13.22	9.75
50-60%	91.17	142.93	161.43	177.18	56.76	12.94	9.75
60-70%	120.05	172.49	201.96	221.66	43.68	17.08	9.75
70-80%	153.21	206.63	248.68	272.95	34.87	20.34	9.75
80-90%	214.04	259.89	337.93	370.90	21.42	30.02	9.75
Top 10%	524.61	489.72	864.76	949.14	-6.64	76.58	9.75
Overall	134.00	160.88	221.14	242.20	20.80	36.60	9.52

Source: C.F.S Reports. Deflator, GDP

The rate of percentage change or growth rates of real mean incomes of decile groups reveal some interesting insights into changes in the distribution of incomes over the 63-82 period [cf. colmn 5-7 of table 3.5]. Considering the growth rates of mean incomes between 1963-73, when one moves from the lowest to the top decile the rate of increase in mean incomes diminishes successively for each decile group. The opposite trend is evident between 1973-79, where there is a steady increase of growth rates of incomes for successively higher deciles.

The size distribution of incomes thus changed in favour of lower income groups between 1963-73, incomes of the lower income groups rose markedly, well over the overall growth. Between 1973-79, incomes of the upper income groups rose relative to the lower income groups. Further, the highest increase is evident in the top decile, its mean income rises as much as twice the overall growth rate. The lowest decile group experienced a fall in their real incomes between 73-79 whilst between 63-73, the top decile experienced a decline in their real incomes. Such a clear pattern of change in the size distribution is not evident between 1979-82. The rate of growth of real incomes in this period is identical for each decile group. However, given that income recipients are ranked in ascending order of their income, constant growth rates indicates a continuation of

changing size distribution of incomes in favour of the upper income groups evident between 1973-79.

The patterns of change in the size distribution of incomes and relative income inequality evident from the foregone analysis are clear. Relative income inequality declined between 1963-73 and increased during the post-73 period. It is informative to compare these changes in income inequality based on personal incomes with alternative distributions such as family and per capita, to see whether the observed changes of income distribution are broad based.

The survey data provides an alternative size distribution, useful for comparison, namely the distribution of incomes classified according to spending units. Further, these data can be used to derive another alternative income distribution, the distribution of incomes among individuals or per capita incomes. Both of these distributions are used for comparison and the estimated summary measures of inequality for respective distributions are shown in the table 3.5.

Table 3.5
Inequality of distribution of incomes of spending units and individuals [per capita]

	Inequality of incomes among Spending Units				Individuals [per capita]			
	63	73	79	82	63	73	79	82
Gini	0.45	0.35	0.44	0.45	0.37	0.22	0.33	0.35
Theil	0.38	0.27	0.34	0.36	0.28	0.12	0.17	0.27

The general pattern of change in the relative income inequality evident from the alternative distributions are consistent with the previous analysis. The inequality of incomes measured by Theil and Gini coefficients for each alternative distribution indicate a reduction in inequality between 1963-73 and an increase over the 73-82 period. Moreover, changes in the size distribution of incomes based on these two alternative distributions are also broadly consistent

with the changes observed in personal income distributions [see Tables A5-6 , Appendix-[A] for details].

Having identified basic changes in relative income inequality, it is possible to evaluate Sri Lankan experience according to different views found in the literature on the relationship between income inequality and economic development. The motivation for this exercise is to set the stage for explanation. First Sri Lankan experience is compared with the growth and inequality relation proposed by Kuznets [1955] and the empirical evidence of Paukert [1973]. Secondly, a survey of Sri Lankan experience in the context of alternative relations suggested in the literature- the influence of growth rate on the change in income inequality- is presented.

3.3 Kuznets' hypothesis and Sri Lankan experience

Much of the literature explaining the patterns of income inequality in developing countries centre around the hypothesis initiated by Kuznets[1955], refined and crystallized by his followers [Kravis 1960, Oshima 1962, Cline 1965, Swamy 1963]. This thesis, widely known as the inverted "U" hypothesis suggests that income inequality tends to increase before it improves with development.[2]

Paukert's diagram establishing the inverted "U" pattern together with the pattern of income inequality observed in Sri Lanka [measured by Gini coefficient] is presented in figure 3.3 to test the relevance of the theory as an explanation of the underlying pattern of income inequality in Sri Lanka. It should be noted that there is no statistical justification for comparing the trend observed at different points of times with observations based on cross sectional evidence. However, such a comparison is justifiable as a useful starting point in our search for an explanation underlying the changes in income inequality.

In the initial year 1963, the degree of income inequality in Sri Lanka is almost exactly that which would be predicted for a country of

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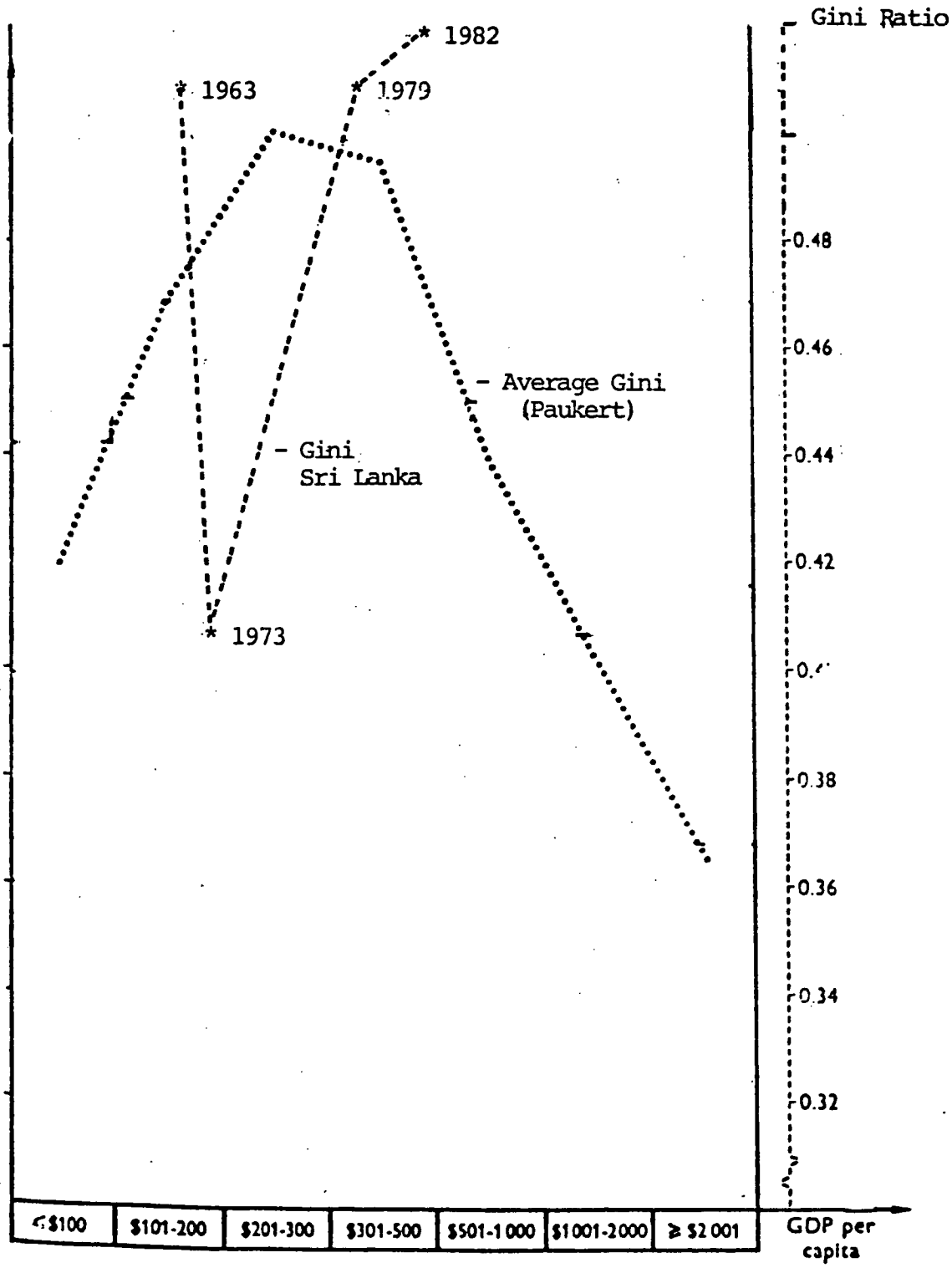
[2] For details, see Ch. 1.

Figure 3.3

Distribution of Income at Different Levels of Per Capita GDP



its per capita income level [Gini .51, Per Capita G.N.P. U.S.$145].[3] The range of per capita income of Sri Lanka between 1963 and 1973, was within the range [$101-200] where inequality is expected to rise [Paukert 1973]. But inequality in Sri Lanka has reduced sharply [Gini coefficient declined from .51 to .41 and per capita G.N.P. [at 1963 constant prices and 1965 exchange rate] increased from US $ 145 to 189]. On the other hand, between 1973 and 1979, per capita income of Sri Lanka was within the range where inequality is expected to fall. The degree of inequality in Sri Lanka, however, increased markedly. This evidence is at odds with the conventional doctrine which emphasizes the level of development as the factor underlying changes in income inequality.

Now let us review Sri Lankan experience in the context of an alternative growth-equity relationship suggested in the literature- the growth rate and income inequality. This hypothesis holds that the degree of income inequality and its changes are influenced by the rate of growth of the economy: When the economy grows slowly the incomes of the middle income groups rise relatively more than that of the upper income groups thus, reducing overall income inequality. When the economy grows rapidly, incomes of the upper income groups rise relatively more than that of lower income groups thus increasing overall income inequality [Adelman & Morris 1973]. The higher the rate of growth, the higher will be inequality and lower the rate of growth, lower will will be the inequality.

It is noteworthy that when one views the changing pattern of income inequality in the context of the rate of growth of the economy [cf. table 3.6] some relation can be found between economic growth and income inequality. Between 1963-73 for example, the economy grew slowly [GNP per capita increased by average of 3 percent] and relative income inequality declined significantly. In contrast, the post 73 period was one in which the economy experienced a rapid rate of growth [per capita G.N.P grew at an average of 5.9 percent per annum between

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[3] For further evidence see, Lydall [1977].

1973 and 79 and by 5.5 percent between 79-82], and also accompanied by a sharp increase in relative income inequality.

Table 3.6
Economic growth trends 1963-82.

	1963	1973	1979	1982
Mean incomes [Real]	134	162	222	244
" [current prices]	134	228	616	1111
Per capita GNP [Real]	638	832	1129	1314
" [current prices]	638	1159	3146	6007
G.D.P. Deflator[1980=100]	28	39	78	128
Rate of change [Annual averages]				
		63-73	73-79	79-82
Mean monthly income[C.F.S]		2.1%	6.2%	3.3%
G.N.P per capita		3.0%	5.9%	5.5%

Source: C.B.R. various issues.

One point, however, needs to be emphasized. The reduction of income inequality evident in Sri Lanka in a period where the economy grew slowly was not solely due to the increased incomes of lower income groups relative to the upper income groups. This was also associated with a fall of incomes among the upper income groups. Therefore one should not read too much into these figures or accept the hypothesis without further evidence.

In summary, although our inquiry is not exhaustive the limited evidence presented above could result in the general inference that neither established theory nor the causal reasoning given in the literature provides a satisfactory basis to explain particular changes of income inequality in Sri Lanka. An alternative explanation is therefore necessary to understand the forces underlying the change in income inequality during 1963-82 period.

3.3.1 Growth and Distribution: An alternative explanation

The distribution of incomes in an economy is determined by the production process and existing payment system. In the process of economic development economic activities undergo changes leading to the readjustment of the production process, institutional changes and hence the pattern of income distribution. The way in which these changes take place depends on the development strategy pursued by the community as a whole which ultimately shape resource allocation, institutional changes and distribution of incomes. Therefore, an examination of the political economy, strategies and policies underlying a growth process should provide a rational basis for understanding the growth induced changes in income distribution over time. We employ this conceptual framework to interprete Sri Lankan experience. Before proceeding, the reader is referred back to ch. 1: where the Sri Lankan political economy background is provided, as this sets the stage for the discussion to follow. For convenience we recall the three major policy epochs identified in the early discussion.

Epoch 1 : Begins in 1956 and proceeds to 1970 and is characterized by inward looking approaches to growth. The prevailing thrust of development strategy was directed towards import substitution and encouragement of local manufacturing industry and in the last three years [i.e., from 1967] domestic agriculture.

Epoch 11. :1970-1977, This era is a continuation of the policies of the preceding era but with notable differences. A high degree of public sector participation and regulation of economic activity and the priority of development strategy centered around achieving greater equity in economic and social life.

Epoch 111. : Extends from mid 1977 to the present time and is an era of liberalization and deregulation of economic activity, abandonment of controls generally and the preference for an open economy with greater reliance on the application of free market principles.

3.3.2 Growth strategies and income inequality

The period from about 1960-73, is the 'early' [Balakrishnan 1977] or 'easy' Mint [1982] phase of industrialization of Sri Lanka, witnessing the beginning of the modern development process. Within a highly protected market and given generous tax concessions and other incentives, the country witnessed the growth of a large number of consumer goods industries, largely based on imported inputs, catering to local demand [Balakrishnan 1977]. Between 1960 and 1963, the number of manufacturing firms increased by 65 percent [C.B.R 1964, Table 11(1)] and the output of the manufacturing sector recorded a 6.3 percent annual growth rate in real terms[1959 constant factor cost prices].

A majority of import substitution industries in the private sector concentrated on the production of various items which were earlier restricted or banned on the grounds of being non-essential and luxuries [I.L.O. 1971]. Another noteworthy feature of the newly emerged private sector industries in the early phase of industrial development was the high degree of concentration of industries among a few entrepreneurs [Balakrishnan 1977]. The inevitable consequence of this development was the emergence of new class of rich, overriding the position of the traditional wealthy class, the owners of plantations [Athukorala 1986].

While the manufacturing sector emerged as the dynamic force in the economy, the agricultural sector lagged behind. Prices of major exports [tea, rubber and coconut products] fluctuated, the export price index [1978=100] for example, declined from 18 in 1956 to 16 in 1963 [C.B.R. 1982]. Informal or traditional agriculture on the other hand was ignored and the prices of the principle crop-paddy[rice]- remained[4] unchanged throughout the period 1952-63.

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[4] The only incentive given to informal agriculture since the independence was the Guaranteed Price Scheme(GPS) introduced in 1948. Under this scheme government paid a set price per unit of paddy which
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These developments, the deterioration or stagnation of the incomes of the vast majority of agriculturalists resulting from falling prices for major export commodities and lack of incentives to informal agriculture on one hand, and the emergence of new class of entrepreneurs with highly profitable ventures on the other, may be considered as the principle economic factor underlying the pattern of income distribution evident from the 1963 survey. The relatively high levels of income inequality evident in 1963 thus reflect the immediate impact of the beginning of the modern growth process which paved the way for concentration of incomes[5] among the minority industrialists within a captive commodity and unorganized labour market while the incomes of the majority agriculturalists either stagnated or was falling. This assertion is consistent with the Kuznets [1955, p. 7] view that the high degree of income inequality in the early stage of development results from the rapid increase of the incomes of those engaged in the modern sector relative to the traditional sector.

The growth process of the economy which was largely based on industrialization continued in the following years under increased protection, despite falling capacity utilization in the manufacturing sector which resulted from increased foreign exchange difficulties [Balakrishnan 1977]. Between 1963 and 1973, industrial output in real terms increased by an average of 8.8 percent per annum. By the early 70s, however, the pace of growth of the manufacturing sector slowed down, between 1970 and 1973, industrial out put grew only by 2.1 percent per annum and from 1970 onward, there was a gradual decline in the rate of growth, from 5.6 percent in 1970 to 1.2 percent in 1973[C.B.R 1965-73 and Balakrishnan (1977, Table 1, P.202)].

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1952.(Hameed et.al. 1976). This price remained unchanged until 1967.

[5] According to Authukorala(1986) "The wealth of this class able to amass over a short period of time in many instances, exceeded the inherited wealth of people who had been connected with the plantation economy over a hundred years"(p.99).

In contrast, the domestic informal sector-traditional subsistence agriculture, experienced a significant growth from 1967 under protection induced through the curtailing of imports of staple food-rice- and other subsidiary food crops such as potatoes, onions and chillies. For the first time in the history of Sri Lanka in 1967, staple food imports were curtailed and the rice ration was cut by half. This resulted in a sharp increase in the prices of domestically produced staple and subsidiary food crops and major beneficiaries were the those engaged in informal agriculture. Most of the traditional subsidiary food crops produced for mere own consumption became valuable cash crops[Gunasekera 1976 P.192].

On the other hand, the public sector expanded rapidly, between 1969 and 1973, employment in government and the semi-government sector rose from 372,500 to 595,600, a 59.9 percent increase [C.B.R. 1970, 1974]. Similarly, as the manufacturing sector expanded rapidly during the sixties, more employment opportunities were created. The total employment in the manufacturing sector increased from 26.3 thousands to 124 thousand [C.B.R.1972,1965] a 374 percent increase between 1963 and 1972. Moreover, wages in this sector continued to increase, the minimum wage index [1952=100] for workers in industry and commerce for example, rose from 130.9 in 1963 to 199.7 in 1973. In particular between 1970 and 1973, minimum wages increased at an annual average of 6.7 percent compared with a 3.8 percent annual average rate of increase between 1963 and 1970 [C.B.R.1975]. The cumulative impact of these trends in the growth process of the economy and associated employment patterns must be reflected in the changes in the distribution of incomes between the 1963-73 period. Perhaps the most influential factor underlying the changes in the pattern of the distribution of incomes between 1963 and 1973 is the growth of the informal sector where the vast majority of the population was engaged.

The improvement of incomes of the lower income groups is undoubtedly a factor bringing about a reduction in relative income inequality. One cannot however, attribute the reduction in overall income inequality between 1963-73, solely to the improvement of the real incomes of the lower income groups alone. As we have already

seen, the reduction of the inequality of incomes evident in 1973 compared with 1963 was not due merely to the increased incomes of the lower income groups relative to the upper income groups, but also due to fall in incomes of the upper income groups. This is an another factor underlying the changing patterns of income distribution in Sri Lanka between 1963 and 1973, which calls for an explanation.

Is there evidence to suggest that the growth process of the economy has been so unfavourable to the rich that their real incomes fell? When one considers the growth trends in selected economic activities some grounds exists to support this suggestion. First, the slowdown of the pace of growth of the manufacturing sector, particularly in the early 70s, and increased wages perhaps might have reduced profitability and incomes of the industrialists. Second, the probable deterioration of incomes of the traditional wealthy group-the owners of plantations- resulted from the stagnation of export prices and increased agricultural wages over the 1963-73 period. The export price index for example, increased from 16 in 1963 to 20 in 1973, while the minimum wage index [1952=100] for the workers in agriculture [plantations] increased from 113.3 in 1963 to 168.1 in 1973 [C.B.R.1978]. Third, increased government intervention in commercial activities may have led to a reduction of the incomes of those engaged in commercial activities and in particular import and wholesale trade.[6] However, the same argument does not apply to the rural

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[6] There is however, counter evidence to refute all the suggestions made above. First, there is evidence that most of the share holders of plantation companies shifted their investment into other areas such as tourism and gem trade as a result of falling returns to the their investment since late sixties (Karunatilaka 1978). Second, although, the manufacturing sector stagnated due to the shortage of raw materials, industrialists were able to maintain their profitability through tax concessions. As revealed by a survey conducted by the Treasury, the profits of the manufacturing firms (except one firm), within the first five years of operation, exceeded the total investments. In some cases, five year profits were three to five times the total capital invested (budget speech 1975, as quoted in Gunasekera 1976 P.205). This revelation even led the government in 1976 to abolish tax concessions given to private companies (C.B.R.1976). Third, though, a large segment of the import trade was nationalized, 'market scarcities created abnormal high profit margins
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land lords -the rural rich- when we consider the growth trends and price movements in the informal agricultural sector evident in this period. Incomes of the owners of large paddy lands and other subsidiary food crops could have increased rapidly due to the increased price incentives induced through government pricing policy and market forces.

The limited evidence assembled on the factors leading to a fall in the incomes of the upper income groups is mixed and inconclusive. Although incomes of some of the rich might have either stagnated or declined over the 1963-73 period, there is insufficient evidence to suggest that the growth process of the economy over the 63-73 period disfavoured the rich to such an extent that their 1973 incomes fell below the 1963 level. An explanation must therefore be found elsewhere, legislative interference and political decisions affected the incomes of the rich in general during this period.

The priority of development strategy pursued by the government in the second epoch centered around the generation of equal opportunities in wealth and social life. The basic instrument adopted in achieving this priority was the direct intervention by the government initially limiting access to high income yielding assets. The first and the most radical policy employed by the government was the Land Reform act introduced in 1971 and the Housing Ceiling act which followed. Under the former, an upper ceiling was imposed on the ownership of land [50 acres dry land and 25 acres paddy land] and under the latter, a ceiling was imposed on the ownership of residential housing. Moreover, an upper limit on personal incomes of Rs.2000.00 per month was also imposed. These direct controls over wealth and personal incomes would have affected the income of the traditional wealthy minority. It is not surprising therefore to see that the incomes of the top decile fell in 1973 compared with 1963 as the high income earners were deprived of their potential means of high

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retailers' (de Silva 1982 P.485).

incomes. Thus the sharp reduction in relative income inequality in 1973 compared with 1963 may reflect the immediate impact of government intervention in limiting the potential high income capacity of the traditional rich on one hand and the improvement of incomes of the agriculturalists, the dominant group of the population.

What happened between 1973 and 77 i.e.,during the latter part of the second epoch is not clear. No data on personal incomes are available to make any inquiry about whether equalization of incomes evident in 1973 continued or discontinued. There is evidence to suggest however that the equalization trends did not last long. First, although the controls over personal wealth affected the high income potential of the rich immediately [both land and housing property owners], they were compensated financially. It is not known whether they reinvested in alternative economic activities, but there are no reasons to believe that the loss of ownership and the potential for high incomes created a permanent loss of their incomes during the subsequent period. Indirectly, this would have probably led to the accumulation of savings among the traditional rich generating a potential source for recovering the losses they experienced. Second, certain policies aimed at improving external position of the economy adopted by the Government during this period, namely export diversification and promotion, gave rise to the emergence of a new group of entrepreneurs and an environment generating high returns. Under this policy various incentives such as credit facilities, tax incentives and subsidies were offered to the exporters of non-traditional exports inclusive of manufactured goods [Gunasekera 1977]. In addition to the increased subsidy for non traditional exports in form of FEECS[7], the exporters of non-traditional exports were offered

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[7] The FEECS, (Foreign Exchange Entitlement Certificate Scheme) introduced in May 1968, created a dual exchange rate system, in the form of official or non-FEECS rate and FEECS rate, for foreign exchange transactions. The FEECS rate placed an additional rupee cost on selected import payments and conferred an additional rupee gain on selected export and invisible earnings. The original FEECS rate set 44 percent of the official or non-FEECS rate and later raised to 55 and 65 percent respectively [C.B.R. 1968, 1975].

an extra-ordinary incentive called 'Convertible Rupee Account" system [C.R.A.]. Under this scheme exporters were allowed to retain 25 percent of the foreign exchange earnings which could be used for either imports or for use in foreign travel.[C.B.R 1973]. Most of the exporters of non traditional goods and services used their share in foreign exchange earnings to import luxury items such as motor cars and household appliances which were banned long before. In a starving market for such items where so many consumers were willing to pay perhaps any price, the way was opened for healthy returns to those engaged in these newly opened economic opportunities [de Silva 1982].

The evidence cited above lends support to the suggestion that the low level of inequality evident in 1973 may not have continued in the latter part of the second epoch. There is no doubt however, that the development strategy pursued by the government in the third epoch paved the way for reversing the pattern of distribution of incomes existing in 1973.

The impact of the growth strategy adopted by the government in the third epoch on the changing patterns of income distribution may be explained by referring to major instruments associated with this strategy. First consider the "exchange rate reforms", including abolition of the managed exchange rate regimes existing over a long period of time and the replacement of it by the floating exchange regime. The initial reaction to the floating of the Sl.currency was the sharp depreciation of Sl rupee by about 100 percent and further depreciation in the currency during subsequent years.[8] The immediate impact of the sharp depreciation of the currency was an instantaneous rise in the incomes of the export producers in general and the group benefiting were largely the producers of traditional export commodities [Tea,Rubber and Coconut] who had been adversely affected previously by the discriminative dual exchange rate system on one hand and falling world prices on the other.

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[8] Us dollar equivalent of Sl. rupee increased from 8.99 to 15.51 immediately after the currency allowed to float in november 1977 and by 1982 to Rs.21.32. C.B.R.1984).

Perhaps the most significant factor paving the way for the high concentration of incomes among upper income groups was import liberalization, the second instrument of the development strategy. The lifting of import controls benefited rich groups in two sectors, industrialists in the manufacturing sector and those engaged in import and wholesale trade. There had been an acute shortage of luxury items in the domestic market since the late 50s and even domestic substitutes were in limited supply due to the shortage of imported raw materials. In this environment, the lifting of import controls, no doubt, paved the way for high returns for those engaged in commercial activities. The magnitude of increased import trade is evident from the trade indices: the import value index [1978=100] for consumer goods [excluding food & drinks and textiles] jumped from 16 in 1977 to 129 in 1979 and the corresponding volume index from 85 to 250.

The free flow of raw materials under the auspices of import liberalization gave a boost to domestic industries, the output of the manufacturing sector for example, showed a 10.8 percent real increase in 1978. Capacity utilization increased from an average of 53 percent between 70-77, to 60 in 1977, and 70 and 72 percent by 1978 and 1979 respectively [Athukorala 1986,Table.5].

Finally, the government's policy of encouraging private sector investment and its participation in the economic development process under which investors were offered intensive tax concessions and other facilities such as interest free credit. The drive to encourage the private sector was not confined to intensive tax concessions alone, well established government enterprises were also sold to the private sector [Lakshman 1986]. These policies created an impressive revival of the economy though the major beneficiaries were those with economic and entrepreneurial capability. According to one author:

> By current liberalization of the economy, the process of concentration of incomes has gained a coherence and consistency which it lacked earlier. Investment and entrepreneurial interests have spread beyond the original spheres. An osmosis of funds across a wide range of enterprises has enabled the bourgeoisie to expand its wealth without let or hindrance." [de Silva 1982 P.486]

The worsening of income inequality evident in the midst of the third epoch, from 1979-1982, may reflect the long term effects of the policy reforms which directly and indirectly paved the way for the concentration of income among the rich. Perhaps the most influential factor underlying the worsening of inequality evident in the latter part of this epoch was the import liberalization policy which had devastating impact on both the local manufacturing and agricultural sectors [de Silva 1982].

The severe competition induced through freed flow of imports affected the manufacturing firms adversely and in particular, small and medium scale firms although, large scale firms with foreign links adjusted to the new market situation successfully [Athukorala 1986]. Most of the industries affected were small textiles, handicraft and cottage industries. According to Ministry of Textile estimates, of 111000 hand-looms existing in the country, 30000 had ceased to function by 1980 [Economic Review[P.B] 6[1]:26]. Moreover, a study undertaken by the Industrial Development Board on the effects of import liberalization on local industries revealed that between 1977 and 1979, 28.9 percent of the approved and unapproved industries were either adversely affected or closed down. Most of the closed down or adversely affected firms were small scale[capital less than Rs.100,000] accounting respectively for 80 percent of firms closed down and 78 percent of those adversely affected. Further evidence may be found in the Survey of Manufacturing Industry of 1978 and 1980 conducted by Dept.Census and Statistics. For instance, in 1978, 66 percent of the registered total firms contributed 6.6 percent to the total value added in the manufacturing sector and by 1980 the percentage share of small firms and their contribution to total value added declined to 42 percent and 1.2 percent respectively. Despite these unfavourable effects, output of the manufacturing sector between 1977 and 1983 grew in real terms at an annual average of 5.1 percent [Athukorala[1986], Table 4]. The obvious implication of these developments is the tendency to concentrate industrial wealth among the owners of large firms.

The discussion has so far been concerned with explaining the likely effects of various development strategies adopted by successive governments on the changing pattern of income inequality. The quantitative significance of these however, have yet to be assessed. We leave this until next chapter where we examine sources of inequality and changes using a disaggregated approach.

3.4.Summary and conclusions

The major emphasis in this chapter has been to identify the changing patterns of personal income distribution over the 1963-82 period. Our findings are summarized briefly. Relative income inequality declined between 1963-73 and rose over the post 73 period, reaching a peak in 1982. The reduction in inequality was accompanied by a fall in the absolute incomes of the upper income groups and a significant improvement in the real incomes of the lower and the middle income groups. The performances of the Sri Lankan economy during the 1963-82 period is compared with the changing pattern of income inequality and it appears from this comparison that the degree of Sri Lankan income inequality and the rate of economic growth are negatively correlated lending support to the argument that relatively high rate of economic growth is associated with greater income inequality. The Sri Lankan economy grew at a slower rate during 1963-73, when redistributive policies produce a reduction of income inequality. Then the acceleration of the growth rate following the policy reforms in 1977 was accompanied by greater inequality. In addition to the particular growth patterns, the changes in income inequality in Sri Lanka over the 1963-82 period are amenable to the differing growth strategies and associated policy measures.

CHAPTER FOUR

PATTERNS AND CHANGES IN INCOME INEQUALITY: A Disaggregated Approach

The preceding chapter revealed that the inequality of size distribution of personal incomes had been subject to significant changes over the 1963-82 period. These changes were explained by referring to development strategies and associated policy measures employed by successive governments during the three policy epochs identified earlier. This chapter analyses the pattern of income distribution and changes over time, using a disaggregated approach with the object of explaining the determinants of the prevailing distributional patterns and to quantify the impact of policy induced changes. These issues are explored by disaggregating total incomes according to major economic activities [or industries] and using decomposition methods.

Incomes of an economy are determined by the production process. Thus, the disaggregation of overall incomes by major economic sectors provides us with a basis for identifying the structure of the distributional pattern associated with the production process of the economy. Moreover, it proves to be the logical basis for evaluating the effects of policy induced changes on personal incomes as most instruments of the economic policy operate via the production system. The decomposition methodology, as will be clearer from the following discussion, provides a convenient basis to quantify and separate out the important factors influencing the determination and changes in income distribution patterns.

Conceptual framework and Methods of Analysis: Decomposition of inequality by industry

It was shown earlier that [ch.2] if the population can be classified into sub-groups in such a way that they relate to some observed relation to incomes, it is possible to quantify the significance of each group using additively decomposable inequality measures. Further, if data on the population is available for different periods then it is possible to consider not only whether the

inequality has changed, but also the source of change. A change in income inequality of the population can be due either to change in the inequality within groups or due to change in the inequality between groups and or due to combined effects of these two.

The effects of development strategies on the change in income inequality can also be incorporated into this general framework by carefully interpreting the terms, within and between industry inequalities. Assuming that the pattern of distribution of incomes in an industry is sensitive to policy changes, any change in economic policy and its impact on the distributional pattern should be reflected in the inequality within that industry. For example, suppose a new policy encouraging large scale farming in agriculture were introduced, then incomes of the landlords could be expected to rise relative to the small farmers and peasants, leading to a change in income inequality in the agricultural sector. This would directly affect the overall pattern of income distribution of the economy, depending upon the relative significance of agriculture as a source of income. On the other hand, a policy which favours a particular sector [for example agriculture] relative to another [for example, non-agriculture] may be expected to increase the overall income inequality, '<u>ceteris paribus</u>', as the incomes of those engaged in the favoured sector would rise relative to the other [i.e., this leads to rise in inequality between two sectors]. Thus, effects of policy induced changes in the structure of production and their influence on the overall pattern of incomes may be conveniently summarized by changes in inequality 'within an industry', and the attendant changes of inequality 'between industries'. The former may be interpreted as reflecting the direct impact of the policy induced changes and the latter, as the indirect effect. Let us elaborate these points in the context of Theil's decomposition procedure given in chapter.2. When there are k sub-groups [n_k is defined as the subset of individuals in industry group k], the aggregate value of the Theil coefficient [T] for the entire population can be written as:

$$T = \sum_k \nu_k \lambda_k T_k + \sum_k \nu_k \lambda_k \log \lambda_k \qquad [4.1]$$

where, $\nu_k = n_k/n$ is the proportion of population in industry group k and $\lambda_k = \mu_k/\mu$ is the share of total income accruing to the k^{th} sub group.

The first term of the eq. 4.1 denotes the contribution of inequality within an industry and the second term is the contribution made by the inequality between industries. Each distinct sub-group contributes two terms to the aggregate value of the T and by definition, they sum to unity. Thus, by summing 'within' and 'between' inequality value assigned to each group and expressing them as a ratio to overall income inequality, the relative significance of the of an industry to overall income inequality can be assessed. This manner one can separate out contributions made by each industry to overall income inequality.

Now consider changes in income inequality. If the overall pattern of distribution of incomes and associated inequality is a function of within and between sector inequalities, it follows that the change in overall inequality is also a function of change in the within and between inequalities. Note also that, the within and between industry inequalities link overall inequality via income shares. Therefore a change in overall inequality at two points of time may be influenced, not only by a change in the within and between industry inequalities but also by possible change in income shares of different sectors. This argument can be summarized taking the time derivative of eq. 2.,

$$dT = \sum_k \left[\frac{\partial T}{\partial \pi_k} d\pi_k\right] + \sum_k \left[\frac{\partial T}{\partial T_k} dT_k\right] + \sum_k \left[\frac{\partial T}{\partial \lambda_k} d\lambda_k\right] \qquad [4.2]$$

$$= \sum_k \left[\left\{ \pi_k dT_k + T_k d\pi_k \right\} + \left\{ \pi_k d \log \lambda_k + \log \lambda_k d\pi_k \right\} \right]$$

where $\pi_k = \nu_{kk}\lambda_k$ is the income share. Equation 4.2 is an exact decomposition of change in overall inequality, representing the impact of inter-temporal changes in inequality within [first expression of eq 4.2] and between industries [third expression] together with the

influence of the change in the income share among industries [second and fourth expressions]. Summing up the terms, within and between industry components, with respect to each industry, one can identify their contribution to the change in overall inequality between two points in time.

The data for the present analysis are derived exclusively from the Consumer Finance Surveys of 1963- 82. All four surveys provide personal income data under 50 industrial groupings, classified according to the international standard industrial classification [ISIC]. For the purpose of the study this data is aggregated into three broad categories; A-sector or Agriculture, M-sector or Industry proper and S-sector or Services. In addition, where a further disaggregation is warranted, analysis is carried out under six one digit ISIC industrial groupings.

The rest of the chapter consists of three main sections: In section one, the pattern of distribution of personal incomes within and between industrial sectors is examined in detail, section two is devoted to decomposition analysis and the third section summarizes major findings.

4. Distribution of Personal incomes by Industry

Table 4.1 summarizes the size distribution of personal incomes classified by three broad industrial sectors: A-sector or agriculture, M-sector or industry proper and S-sector. Following Kuznets [1967], we include agriculture, fishing, hunting and forestry in the A-sector; manufacturing, construction and transport in the M-sector; utilities, trade and finance, personal and government services in the S-sector. In addition to these three major industrial groupings, a fourth category [for the purpose of accounting identity]- "Other" is also identified. This includes income recipients whose industry cannot be ascertained and those who are economically inactive [i.e.,income recipients who received incomes through transfer payments such as pensions, gifts etc]. The first column of the Table 4.1 gives the proportion of total income recipients by each industrial sector and the second column corresponding income shares. The third column

presents mean incomes expressed in current prices and the figures in parenthesis are relative mean incomes: the ratio between sector specific mean income and overall mean income.

Table 4.1
Distribution of incomes between major industries

Sector of Activity	1963 Pop. Shr. %	1963 Inc. Shr. %	1963 Mean Inc. Rs.	1973 Pop. Shr. %	1973 Inc. Shr. %	1973 Mean Inc. Rs.	1979 Pop. Shr. %	1979 Inc. Shr. %	1979 Mean Inc. Rs.	1982 Pop. Shr. %	1982 Inc. Shr. %	1982 Mean Inc. Rs.
A-Agri.	50.4	38.8	103 [0.77]	51.4	42.2	187 [0.82]	45.2	37.6	513 [0.83]	45.3	37.8	927 [0.83]
M-Manuf.	13.1	15.2	155 [1.16]	14.7	16.4	254 [1.14]	24.0	24.5	630 [1.02]	22.4	21.4	1058 [0.95]
S-Service	19.7	35.4	240 [1.79]	27.9	35.6	298 [1.31]	23.6	30.6	798 [1.29]	24.0	31.9	1477 [1.33]
Other	16.7	10.6	85 [0.63]	5.7	4.8	184 [0.83]	7.2	7.3	628 [1.01]	8.3	8.9	1195 [1.07]
Total	100.0	100.0	134	100.0	100.0	228	100.0	100.0	617	100.0	100.0	1111

Source: Computed from CFS [Pt.11, Statistical Tables], 1963: Tables IR. 8.53-70, 1973: Tables I.154-201, 1979: Tables 4.183-274, 1982: Tables 5. 139-. 172.

The distribution of total incomes and population between industries is uneven and in particular, the share of total incomes accruing to the S-sector is considerably greater than the corresponding population share. In 1963, the proportion of total income shared by the participants of the S-sector, accounting for 20 percent of the total labour force, amounted to 35 percent of the total income. In contrast, agriculturalists, accounting for over 50 percent the total income recipients in 1963, shared only 39 percent of the total income. Some impression of the magnitude of the dispersion of incomes of the participants between industries can be gathered from the sector specific mean incomes. The mean income of the S and M-sectors in 1963 for example, were respectively 133 and 50 percent greater than the mean income of the A-sector.

The S-sector remains as the industry with highest mean income throughout the 63-82 period. However, relative inequality of incomes between industries tends to narrow over the 1963-82 period. This is evident in the changing magnitudes of the relative income coefficients, a simple measure of inter-industry inequality, which

expresses the mean income of an industry relative to the mean income of the entire population[1]. The relative mean income coefficient of the A-sector increases from 0.77 in 1963 to 0.83 in 82, whereas in the M and S-sectors, it declines from 1.16 to 0.95 and from 1.79 to 1.33 respectively.

4.2.1. Size Distribution of incomes and relative income inequality within industries

Table 4.2 presents a summary of the size distribution of personal incomes within industries classified according to one digit ISIC, together with summary measures of inequality; the Gini coefficient and Theil's entropy [T] measure. The pattern of inequality of the size distribution of incomes within industries evident from both of these measures is broadly consistent. So, no ambiguity arises in interpretation using any of them and we rely primarily on the Gini coefficient in the discussion to follow.

Table 4.2 indicates that the pattern of distribution of incomes within one digit industries and relative income inequality are almost identical in 1963 and 73. Incomes were most unequally distributed in the commerce sector, followed by the manufacturing, services, agriculture, construction and transport industries. However, the pattern of income inequality evident in 1979 and 82, is markedly different. The manufacturing sector emerges as the industry with the highest degree of income inequality in 1979, followed by the agriculture, commerce and service industries. A further change in the pattern of income inequality within industries is evident in 1982. The highest degree of income inequality is evident in the commerce sector, followed by the agriculture, manufacturing and services. The construction and transport industries on the other hand, remains as the industries with the lowest levels of inequality throughout the period 1963 to 1982.

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[1] This, as a measure of inter-industry income inequality is the one devised by Kuznets[1955]. Further, this is essentially the basis for measuring the inter-industry inequality implied in T measure measure [cf. second term in the eq.2].

Table 4.2
Inequality of size distribution of incomes within industries

	Agricul	Manuf.	Const.	Trans	Comm.	Servi	Other
1963							
Pop. Sh.[%]	50.4	7.1	1.8	4.2	7.1	12.6	16.7
Inc. Sh.[%]	38.8	7.2	2.0	6.0	12.2	23.2	10. 6
Mean Rs.	103	134	151	192	229	246	63
Gini	.4561	.4981	.3874	.3487	.5483	.4888	.4137
T	.3392	.3981	.2423	.2056	.5084	.3917	.2100
1973							
Pop. Sh.[%]	51.4	9.0	1.7	4.0	6.9	21.0	5.7
Inc. Sh.[%]	42.2	8.9	1.6	5.9	10.6	26.0	4.8
Mean Rs.	187	227	213	332	352	281	184
Gini	.3873	.3931	.3188	.2765	.4318	.4088	.4586
T	.2349	.2435	.1550	.1750	.2969	.2703	.3305
1979							
Pop. Sh.[%]	45.2	14.1	5.0	4.9	9.1	14.0	7.2
Inc. Sh.[%]	37.6	13.9	4.1	6.4	12.4	17.4	7.3
mean Rs.	513	610	514	804	847	765	628
Gini	.5166	.5280	.4366	.3773	.4890	.4395	.5110
T	.4394	.4666	.2973	.3449	.3983	.3164	.3974
1982							
Pop. Sh.[%]	45.3	13.2	5.2	4.1	9.4	14.7	8.3
Inc. Sh.[%]	37.8	12.0	4.4	5.0	14.4	17.5	8.9
Mean Rs.	927	1006	947	1368	1707	1330	1195
Gini	.5414	.4995	.4262	.3995	.5519	.4576	.5367
T	.5071	.4097	.3236	.3157	.5234	.3708	.5234

What factors contribute to the wide variations in the inequality of size distribution of incomes within industries and their apparent changes over time? To provide a plausible explanation, one must examine the details of production relations viz, ownership patterns of factors of production unique to each sector and their changes over time. We begin by studying the pattern of distribution of incomes within industries in the initial year of study- 1963.

4.2.2 Patterns of distribution of incomes among industries and sources of inequality in 1963.

The distinct feature of the size distribution of incomes in the commerce sector [which is composed of trade and financial institutions] was the extreme concentration of incomes among the upper income groups [see Table 4.3 below]. The share of incomes accruing to the top 10 percent of the income recipients accounted for 43.7

percent of the total income [see table 4.3 below], and the average income of this group, the highest among all industries, amounted to Rs.1000 per month.[2] On the other hand, a majority of the income recipients in this sector, over 77 percent of the total, received incomes less than the overall mean, which amounted to Rs.229 per month in 1963. The share of total income accruing to this group accounted for only 37 percent [C.F.S.11. (1963): Table IR.8.60[A]].

The wide dispersion in incomes among participants in commercial activities evident in 1963 can be explained by referring to particular structure of this sector, which developed alongside the growth of the plantation sector during the early part of the 20 th century. Trading activities, in particular foreign and wholesale trade, were concentrated among a hand full of local entrepreneurs with close links with the British rulers [De Silva 1982]. The virtual monopoly power enjoyed by these entrepreneurs extended also to finance, insurance, and entrepot trade. In contrast, retail trade, the source of income of the majority of income recipients in this sector, consists of a large number of small units and is highly competitive, the scale of operation is small. Therefore, the highly unequal nature of the size distribution of incomes evident in 1963 can be attributed to the variations in market power enjoyed by the participants in commercial activities in general, and to the existence of monopoly elements in particular.

The manufacturing sector, second highest in terms of the degree of income inequality in 1963, represents income recipients in small mining and manufacturing industries. The relatively high degree of income inequality evident in this sector is associated with low level of average incomes. The mean income of this sector, which amounted to Rs.134 per month for example, was the second lowest among all industries, and the lowest relative to the other two sub sectors in the broad M-sector, construction and transport industries.

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[2] Estimated on the basis of data given in the Table 4.2 and the original figures given in the C.F.Ss.

Table 4.3
Percentage of total income received by each twenty percent of ranked income receivers by industries.

	Agri.	Manu.	Cons.	Trans.	Comm.	Serv.	Othe.
	Percentage shares of total incomes						
1963.							
Lower20%	5.19	3.4	6.64	6.46	2.87	3.67	6.29
20-40%	10.17	8.37	11 85	13.94	7.05	8.82	9.03
40-60%	13.65	13.81	14.39	17.24	12.63	13.63	9.97
60-80%	19.04	21.75	20.35	18.83	19.35	21.07	31.52
80-100%	52.67	52.67	46.77	43.53	58.10	52.51	43.19
[Top 10%	35.90	37.70	29.80	28.76	43.73	37.70	21.91]
1973.							
0-20%	5.48	4.51	7.16	8.45	5.36	4.93	4.08
20-40%	10.89	11.28	13.16	14.20	10.26	10.48	8.43
40-60%	16.13	16.97	16.69	18.72	14.96	16.05	14.72
60-80%	23.26	23.46	24.14	22.93	21.17	22.85	22.95
80-100%	44.24	43.78	38.85	35.70	48.25	45.69	49.82
[Top 10%	27.96	28.02	24.85	21.00	33.58	30.29	28.31
1979							
0-20%	3.82	2.81	4.56	6.07	4.25	4.62	3.80
20-40%	8.78	8.04	10.53	11.89	8.66	10.19	8.42
40-60%	12.40	13.26	15.72	16.16	13.20	15.10	12.91
60-80	19.16	19.93	21.11	21.74	19.87	21.26	19.43
80-100%	55.83	55.96	48.10	44.14	54.02	48.83	55.44
[Top 10%	41.19	41.66	28.32	38.23	34.27	34.37	33.47
1982							
0-20%	3.86	3.50	4.93	6.42	3.53	5.13	3.19
20-40%	7.65	8.74	10.56	11.21	7.32	10.18	7.71
40-60%	11.80	13.53	15.81	15.55	11.38	10.89	12.10
60-80%	17.81	20.17	21.52	20.87	17.75	22.00	18.93
80-100%	58.88	54.06	47.18	45.95	59.82	51.80	58.07
[Top 10%	44.19	38.56	26.22	41.49	37.38	46.00	36.21

Source: estimated from the data sources given in the Table 4.2.

The low level of income per head reflects the particular structure of the manufacturing sector in Sri Lanka, which was dominated by the consumer good industries in the early phase of its development [Balakrishnan 1977]. Most of these industries employed unskilled labourers who were paid low wages [Oshima 1972]. While the majority of workers in the manufacturing industries received low wages, the protection induced through import substitution policy and other incentives ensured high returns to the industrialists [Budget Speech 1975]. Further, industrial wealth was concentrated among very few entrepreneurs [Balakrishnan 1977, De Silva 1982, Athukorala

1986]. Therefore it is not surprising that despite low average incomes, the degree of income inequality in the manufacturing sector was high.

The one digit service sector, which had the next highest degree of income inequality in 1963, can be ranked together with the manufacturing sector. The degree of inequality of incomes within these two sectors is almost identical. However, there is a significant difference in the average level of incomes between these two sectors. The mean income of the services, the highest among all one digit industries, is 83 percent greater than the mean incomes of the manufacturing industry. The service industry represents most of the skilled persons in the entire economy with high earning capacity. They include highly paid professionals such as lawyers and accountants [business services], medical practitioners [community services] and administrators [government services]. This also includes the least paid workers in the whole economy, hotel and restaurant workers [personal services]. Given the heterogenity of the service industry, the prevailing income inequality in this sector can be explained by referring to the differences in incomes among the individuals in engaged in different services. These data are given in the Table 4.4.

Table 4.4
Distribution of income recipients [IR] and current mean incomes [MY] per month [Rs.] among sub-service sectors.

	1963		1973		1979		1982		63-73	73-79	79-82
Sub-serv.	IR	MY	IR	MY	IR	MY	IR	MY	[%] change in		
sectors	[%]	Rs.	[%]	Rs.	[%]	Rs.	[%]	Rs.	Mean incomes		
Business	13.6	475	3.4	535	6.9	907	6.2	1835	12.6	69.5	102.3
Community	33.0	288	21.9	386	42.0	883	37.2	1401	34.2	128.7	58.7
Govt.	20.7	185	27.9	357	24.2	826	30.9	1475	93.2	131.4	178.6
Personal	32.7	75	47.7	116	26.8	489	25.7	870	54.7	376.5	77.9
Overall	100.0	246	100.0	281	100.0	765	100.0	1330	14.0	172.7	73.8

Source: 1963: C.F.S Pt.1, Table 68. For 73,79 & 82 as in the Table 4.2.

The average income of the business service sector, which represented 13.6 per cent of the total income recipients in the one

digit service sector in 1963, was more than six times greater than the average income of those in personal services which represented 33 per cent of the total income recipients. The difference between the mean incomes between sub-sectors was quite large and income per head in the government and community services was three to five times greater than the mean income of the personal service sector. Given these wide variations in the average level of income of the participants in the heterogeneous service activities and varying degrees of earning capacities, the inequality in the size distribution of incomes in the one digit service sector may be attributed to the factors associated with occupational differences such as, inequality in education, differences in abilities and skills.

Fourth in our ranking of the degree of income inequality in 1963 was agriculture, representing 50 percent of the total income recipients.[3] It has the lowest average incomes among major industrial groupings and relatively less less dispersed incomes. To provide an explanation of the relatively low level of inequality associated with low levels of incomes it is necessary that the particular structure of production and the pattern of distribution of agricultural lands to be examined. This is because land is one of the most important factors affecting agricultural employment, labour productivity and income among agriculturalists [Paulino 1977].

Some insight into the structure of production of agriculture can be observed from the Agricultural Census carried out prior to the 1963 Consumer Finance Survey. [These data is presented in Table 4.5]. The distinct feature of the agriculture in Sri Lanka as revealed in the survey was the prevailence of small scale production units or holdings. Over 65 per cent of the total agricultural holdings in 1962 were under 2.5 acres in size and the corresponding number of operators were about 70 percent.

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[3] The agricultural sector consists of two distinct production activities, the peasant or traditional agriculture and plantation or modern agriculture. The former includes the production of food crops, the principle crop is paddy [rice]. The latter refers to export agriculture, main products are tea, rubber and coconut.

Table 4.5
Size distribution of agricultural holdings

Size of Ag. Holdings	No of Hol.as % of Total	Extent[Acres] as % of Total	Operators as % of Total
>.5 Acres	19.6	1.2	19.2
.5 > 1	15.6	2.6	16.1
1 > 2	na	na	21.8
2 > 3	na	na	13.2
1 > 2.5	30.0	11.5	na
2.5> 5	19.0	16.4	na
3 > 5	na	na	14.0
5 > 10	11.4	18.3	11.3
10 > 25	3.2	11.4	3.2
25 & over	1.2	38.7	1.1
Total	100.0	100.0	100.0

Notes: Total No.of Agri.Holdings, 1166311
Total area of extent[Acres] 4666533
Total No.of Operators 1170612
Source : Agricultural Census 1962.

Another important feature evident from this data is the highly unequal distribution of agricultural land. A total number of 95.6 per cent of the agricultural holdings, which were under 10 acres in size, extended over only 50 per cent of the total acreage under agriculture. In contrast, a very small proportion of agricultural holdings, 4.5 percent of the total, have extended over the remaining 50 percent of the land area under agriculture. Given the extreme concentration of agricultural land, and the assumed direct relationship between the distribution of agricultural land and the income of the agriculturalists, one would expect the degree of concentration of agricultural incomes to be much higher than the level revealed in survey data. The Gini coefficient for agriculture which is 0.46 in 1963 for example, is significantly lower than the Gini coefficient for distribution of agricultural land, which has the value of 0.70 [estimated on the basis of data given in the Table 4.5]. This apparent contradiction may be explained by referring to a specific feature of the ownership pattern of agricultural land, namely, foreign ownership [Gunasekera 1975]. It is not surprising therefore that despite the high concentration of the distribution of agricultural land, the concentration of agricultural incomes evident in 1963 is low, because most of the agriculturalists were operating

very small farm units and most of the incomes generated in large plantations were not injected into the local economy.

The low levels of average incomes in this sector, on the other hand, is self-explanatory. A majority of the agriculturalists operate very small farm units and average income per head is small. Further, technological drawbacks inherent in the traditional agriculture coupled with institutional factors such as different forms of tenure systems impose formidable restraints on productivity and hence incomes among the majority of traditional agriculturalists.[4] An additional factor contributing to low incomes among agriculturalists is the very low wages prevailing in plantation sector Lee 1978].

Finally, within the construction and transport industries, where, income inequalities were the lowest, mean incomes were relatively high. The mean income of the transport sector which amounted to Rs.192 per month, was the highest among the other two sub-sectors in the broad M-sector, [construction and manufacturing] and third highest relative to all other industries. The low level of inequality associated with relatively high level of mean income in the transport sector can be attributed to a less dispersed ownership pattern of the means of production. The entire transport industry - rail, road [passenger], air and telecommunication - was a government monopoly. The private sector participation in this sector was limited to small road freight transportation which was highly competitive and consisted of a large number of small scale owner-operated units [Ministry of Transport, 1976]. Thus, the prevailing income inequalities may largely reflect the income differences among participants associated with occupations. The construction industry, which had the second lowest degree of income inequality in 1963, was of negligible significance, it accounted for less than 2 percent of the total labour force and incomes.

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[4] For a detailed discussion on tenure problems and their impact on productivity and incomes among peasants, see Bansil [1974].

Having briefly outlined the structure of production relations and associated distributional patterns in the initial year of the inquiry, we will now consider their changes over the 1963-82 period.

4.2.3. Changes in the size distribution of incomes among industrial sectors 1963-1982.

Table 4.6 presents the change in the inequality of size distribution of incomes within industrial sectors, measured by G and T, and the change in the mean monthly incomes [current] between sub-periods, 1963-73, 73-79 and 79-82.

Table 4.6
Growth of incomes and changes in the degree of inequality 1963-82.

	Rate of Change in Inequality [%]						Rate of change of mean incomes [current] [%]		
	63-73		73-79		79-82		63-73	73-79	79-82
	G	T	G	T	G	T			
Agr.	-15.1	-30.7	33.4	87.0	4.8	15.4	81.5	226.2	80.7
Manu.	-21.1	-38.8	34.3	91.6	-5.4	-12.2	69.0	169.3	64.9
Con.	-17.7	-36.0	36.9	91.8	-2.4	8.8	40.7	141.8	84.2
Trans.	-20.7	-14.9	36.5	80.4	5.9	9.2	72.9	142.2	70.2
Comm.	-21.2	-41.6	13.2	34.4	12.7	31.4	53.8	140.9	101.5
Ser.	-16.4	-31.0	7.5	17.0	4.1	17.2	14.0	172.7	73.8
Other	10.8	57.4	11.4	20.2	5.0	31.7	116.5	241.3	90.3
Overall	-14.3	-35.8	16.5	48.1	2.6	16.0	70.4	170.6	80.1

Source: Computed from Table 4.2

The pattern of change in income inequality within the commerce sector is consistent with the change in the overall pattern of income inequality. The inequality of incomes in this sector declined between 1963 and 73 and then rose over the 1973-82 period. Between 63-73, the commerce sector experienced the largest decline in income inequality among all industries, the Gini coefficient dropped by 21 percent and T by 42 percent. The income share of the top 10 percent declined by 10.2 percentage points.

These changes are consistent with the particular changes in the commercial activities and the growth pattern of this sector. As we have already noted in the preceding chapter, the period 1963-73 was

one in which trading activities in general, and import trade in particular, were under increasing scrutiny by successive governments. Government intervention in trading activities, which was initially limited to imposition of quantitative restriction on imports, reached unprecedented levels by the early seventies. The government intervened in the importation of and distribution of essential goods and services. In addition, the government employed a comprehensive price controlling mechanism, both rationing and controlling market prices over a wide range of goods and services [C.B.R.1973]. The sharp reduction in the inequality of incomes in the commerce sector, which was accompanied by a sharp reduction in the incomes share of the upper incomes groups, thus reflects the impact of government trade policy, which effectively weakened the monopoly power enjoyed by the upper income groups in this sector, the importers and wholesalers.

Following deregulation and liberalization of trade in 1977, the degree of income inequality in the commerce sector rose. The Gini and Theil coefficients rose by 13 and 34 percent between 73-79 and income share of the top 10 percent rose by 4.7 percentage points. Both changes in degree of income inequality and mean incomes in this sector, however, are relatively small in comparison with other industries. For example, the rate of increase of the degree of inequality in this sector was the second lowest and mean incomes were the lowest among all industries. Contrary to our expectation, this evidence suggests that policy changes of 1977 had not brought about significant changes in the pattern of income distribution in this sector. Long term effects of such policy changes are, however, clear. Between 79-82, both degree of income inequality and mean incomes of the commerce sector increased at a higher rate than any other industry. Mean income rose by 101 percent and the degree of income inequality measured by the Gini and Theil coefficients rose by 13 and 31 percent respectively.

The change in income inequality in the one digit service sector over the 1963-82 period is also consistent with the changing pattern of income inequality of the commerce sector, which is the second sub-sector of the broad S-category. However, such changes are less

pronounced. Between 63-73 for example, both the rate of change in the degree of inequality evident from the Gini coefficient which amounted to 16.4 percent and the rate of growth of incomes evident in the mean incomes which amounted to 14 percent, were significantly lower than the commerce sector.

Between 1973 and 79, the mean income of the service sector, however, increased at a higher rate [173 percent] than the commerce sector [141 percent]. But inequality of incomes in this sector increased at a slower rate viz, by 7.1 percent, compared with the commerce sector which experienced a 13.5 percent increase. Between 1979-82, the the rate of increase in the degree of income inequality and the mean incomes of the service sector is far lower than the commerce sector. The relatively less pronounced changes in the pattern of income inequality in the service sector compared with the commerce sector may reflect less sensitivity on the part of the service industry to policy changes than that of the commerce sector. Unlike the commerce sector where trade policy has a direct impact on the determination of incomes among its participants, incomes of the participants in heterogeneous service activities are influenced by a multitude of factors. For example, incomes of the participants in government services could change due to government wages policy, but in personal services where a majority of the participants are self-employed, wages and salaries are determined by market forces. Moreover, changes in the pattern of income distribution within the service industry could be influenced by the structural changes of the service industry resulting from varying growth patterns of the economy.

One of the notable changes in the structure of the service industry evident between 1963-73 was the declined significance of business and community services. The employment share of business services [see Table 4.6] declined from 13.6 to 3.4 percent and, the employment share of the community services declined from 33 percent to 21.9 percent. In contrast, the significance of government services increased, the employment share increased from 16.9 per cent in 1963 to 26.4 per cent by 1973. Further, average incomes in the government

sector increased at a faster rate, i.e., by 92.9 percent compared with the business and community services which experienced 12.6 and 34.8 increase respectively. The employment share of the personal service sector also increased significantly, from 32.7 to 47.7 percent, and mean income by 54.6 percent.[5]

Between 1973 and 79, the proportion of income recipients in business services increased from 3.4 to 6.9 percent and in the community services from 21.9 to 42 percent. However, the rates of growth of incomes in these two sectors, which amounted to 69.5 and 128.7 percent respectively, was lower than the government and personal services which experienced growth rates of 131.4 and 326.5 percent respectively. The employment share of the business services remained almost unchanged between 1979 and 82 while the employment share of the community services declined from 42 to 37 percent. On the other hand, not only the significance of the government services sector increased during this period, from 24.2 to 30.9 percent, but also the mean income of this sector recorded the highest growth rate. Mean incomes of government services for example, increased by 178.6 percent compared with the growth rates of business, community and personal services which were 102.3, 58.7 and 77.9 percent respectively.

Changes in the inequality of incomes in the one digit service sector, and changes in employment shares of its sub-sectors- business and community- indicate a positive correlation. Between 63 and 73, the degree of income inequality declined and also the employment shares of these two sub-sectors. Between 73 and 79, income inequality increased and the employment share of the business and community services also increased. This relationship, however, is not apparent between 1979 and 82. Despite the decline in the

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[5] The increased significance of personal services and the rise of mean incomes are due to the rapid growth of Tourist industry evident in this period. Total tourist arrival for example, increased from 18.4 to 77.9 thousands and the foreign exchange earnings increased from 5.5 to 79.5 million rupees between 1963 and 73 [CBR, 1970 and ESSS, 1978].

employment share of the community services [from 42 in 1979 to 37.2 percent in 82], the overall inequality of this sector increased. This is not surprising given the fact that not only the employment share of the community services reduced, but mean incomes of this sector also grew at a slower rate. Government services emerged as the sub-sector with the second highest mean incomes in 1982, replacing community services which had had the second highest mean income among sub-services since 1963.

The pattern of change in inequality of incomes in the manufacturing sector over the 1963-82 period takes a slightly different form to that of the services sector. Income inequality declines between 1963 and 73, increases between 1973 and 79, becoming the industry with highest degree of inequality, and then declines by 1982. These changes are broadly consistent with the growth pattern of this sector which was subject to significant changes over the 1963-82 period. As was shown in the last chapter, the pace of growth of the manufacturing sector slowed down during the early seventies, the income share of upper income groups declined and the degree of inequality declined sharply. When the manufacturing sector regained its pace of growth post 73, incomes of the upper income groups and degree of income inequality rose. For example, the income share of the top 10 percent increased by 13.6 percentage points and Gini and Theil coefficients by 33 and 91 percent respectively. Between 1979 and 82, the pace of growth of the manufacturing sector slowed down and incomes of the manufacturing sector recorded the lowest rate of increase amongst all industries [by 65 percent]. The income share of the top 10 percent declined by 3.0 percentage points and the Gini coefficient declined by 5.4.

In addition to the variations in growth patterns which influenced the incomes of the upper income groups, the change in incomes of the lower income groups, namely industrial workers, were also subject to significant changes. There was a tendency that industrial wages to rise at a higher rate than the rate of growth of incomes in this sector. The minimum wage index for the workers in industry and commerce for example, indicated a 7.3 percent annual

growth rate over the 1963-73 period compared with growth rate of mean incomes of this sector which averaged 6.9 percent per annum. The opposite occurred between 73-79, wages of the industrial workers lagged behind, the minimum wage index [1967=100] increased only by 18.8 percent per annum compared with the growth rate of mean incomes which accounted for 28.2 percent per annum. The rate of growth of wages and mean incomes during the period 1979-82 was lower than the preceding period. The wage rate increased at an annual rate of 14.9 percent and mean incomes by 21.6 percent per annum.

Given these growth patterns, the reduction in the inequality of incomes evident in 1973 compared with 1963 may be mainly attributable to the slowing down of the pace of growth of manufacturing sector and probable stagnation of profit margins of the industrialists. The rising wages of industrial workers might have further affected the profit margins leading to fall of incomes of the upper income groups. Between 1979 and 82, despite the slow growth of wages of the industrial workers relative to the overall growth rate of mean income, the inequality of incomes declines. This suggests that the declining income inequality evident between 1979-82 in comparison with 1963-73, has been due to factors other than the growth pattern of incomes between industrialists and workers. Two contributing factors leading to reduction in incomes of upper income groups may be cited: The intensified competition induced through the free flow of manufactured imports and the withdrawal of tariff protection enjoyed by domestic producers in 1981 [Athukorala 1986].

The pattern of distribution of incomes in the construction industry, the second sub-sector in the broad M-category, is similar to that of manufacturing industry. Income inequality declined between 1963-73, rose between 1973-79 and then declined between 1979-82. These changes may also be explained by referring to the growth pattern of this industry. The construction industry, which had been lagging behind since the late sixties due to the slow growth of the economy, received an impetus after 1977 through the government's construction oriented development strategy [CBS 1979, P.82]. The construction industry between 1977 and 83 for example, grew at an annual average

rate of 11.03 percent [at 1970 constant prices] in comparison with annual growth rate of -2.66 percent over the 1970-77 period [Athukorala 1986, Table 4]. The increased significance of this sector is also evident in survey data, the proportion of total income recipients in increased from 1.7 in 1973 to 5.2 percent in 1982.

In addition to the stagnation of the construction industry because of the slow growth of the economy in general, increased government participation during the latter part of 1960s was an important factor underlying the change in the pattern of income distribution. Since 1966 for example, all major government construction works were carried out by the government owned construction firm [State Engineering Corporation]. From 1977 onwards, both government participation and the growth pattern changed and inequality of incomes rose. It is noteworthy that the rate of increase in inequality of incomes in this sector between 1973 and 79 was the highest among all industries, the Gini coefficient indicating a 37 percent increase. Despite the rapid rate of growth of construction industry between 1979 and 82, the inequality of incomes declined. This is due mainly to the rapid rise of wages of construction workers. The average daily wage per building worker [carpentry and masonary] for example, rose from 27.30 to 53 rupees indicating almost a hundred percent increase between 1979 and 82 [ESS, 1982: Table 7.5]. A similar rise in the wages of unskilled building workers was also evident, the daily wages for this group increased from Rs.14 to 26.

The change in the pattern of income inequality in the transport industry over the 1963-82 period follows the overall pattern. The sharp reduction in the inequality between 1963 and 73, and the subsequent rise evident over the period 1973-82 reflect the impact of the policy induced structural changes which altered the face of the transport industry during the latter part of the seventies. Throughout the 63-77 period, the transport industry grew as a government monopoly, and the small private sector (mainly, freight transport and hire cars & taxis) lagged behind. Following the 1977 policy changes, the private sector transport industry began its

revival and by late 1978, the government monopoly on passenger transportation was broken.

Perhaps the most influential factor underlying the growing income inequality within the transportation industry over the 1979-82 period was the deregulation of the road passenger transport industry. Both, the road passenger and domestic aviation industries were deregulated and the transport industry began its growth through private sector participation. In an environment where the demand for road passenger transportation was increasing [due to high prices of petrol], the private sector passenger transportation industry grew rapidly relative to the government sector. This is evident in the rapid growth of the private sector passenger transport fleet which experienced a 592 percent [i.e., from 1530 buses to 10593] growth rate compared with the growth rate of the public sector fleet, which amounted to 15.7 percent [from 13466 buses to 15579 (ESS Vol.V, Table 9.3)] between 1978 and 82.

The change in income inequality in the agricultural sector, as in the case of the commerce and service industries, followed the overall pattern. However, the rate of change in inequality and the rate of growth of incomes in this industry over the 1963-82 period is is distinctly different from the rest of industry. The rate of growth of mean incomes in agriculture between 63-73 for example, was the highest amongst all industries, but the rate of decrease in inequality in this sector was the lowest. The Gini coefficient declined only by 15 percent [from .456 to .387].

These findings warrant elaboration because; first, one would expect income inequality in agriculture to fall dramatically in 1973 compared with 63, given the radical change in the pattern of land ownership which took place in 1972. Second, this was a period where prices of traditional food crops were subject to rapid increase. Despite the drastic change in agricultural land ownership [hence incomes of the upper income groups], the relatively less pronounced change in in the agricultural sector suggests that, 'land reforms' have had a small effect on upper income groups. Alternatively,

other developments taking place during this period, mainly the rapid increase in the prices of paddy and other subsidiary food crops evident since 1967, could have been the major contributor to changing inequality evident in agriculture during this period. The rapid increase in the prices of peasant crops encouraged the agriculturalists in general, to a fuller use of their land. Consequently, the farmers who had relatively large agricultural holdings and other financial assets might have benefited from these impressive price rises. The major beneficiaries however, seems to be the middle 40 percent of agriculturalists. This is reflected in the increased income share of the middle 40 percent of agriculturalists which showed a 6.7 percentage point increase between 63-73. In contrast, income share of the lower 40 percent of agriculturalists increased by only one percentage point between 63-73.

The stagnation of incomes of the lower 40 percent of the income recipients in agriculture between 1963-73, despite the significant rise in the prices for their principle products, may be explained by referring to other developments taking place within peasant agriculture during this period and namely the high degree of land fragmentation. The total number of agricultural holdings between 1962-73 for example, increased by 31.2 percent and the number of agricultural holdings under one acre in area increased by 58.7 percent [from 410400 to 651420] [The Census of agriculture, 1962, 1973]. Apart from the diminishing size of agricultural holdings affecting the incomes of the peasants, the slow rate of growth of the incomes of the plantation workers resulting from the stagnation of plantation sector, was an additional factor contributing to the stagnation of incomes among the lower 40 percent of the income recipients in the agriculture.

While the changing pattern of distribution of agricultural incomes between 63 and 73 can be attributed to the rapid growth of domestic agriculture resulting from price incentives induced through import substitution policy, the change in the distribution of agricultural incomes evident in 1979 compared with 1973 can be ascribed to the rise in the prices of plantation crops resulting from

exchange rate reforms of 1977. In addition to the price incentives provided by currency devaluation and continued depreciation of the currency in subsequent years, prices of export crops continued to rise due to the unusual boom in the world prices for major export commodities [C.B.R 1982]. Between 1977 and 79 for example, the price index [1978=100] for the major export crops; tea, rubber and coconut products, increased by 61, 181, and 171 percent [CBR 1984] respectively. In contrast, the prices of the principle peasant crop-paddy- lagged behind, the price per bushel of such paddy remaining unchanged at Rs. 40.00. [C.B.E.R.1982].

The rapid increases of prices of plantation crops [hence incomes of producers of plantation crops] relative to the prices of peasant crop [hence the incomes of peasants], leading to a rise in the income inequality among agriculturalists, was a trend reversed during the 1979-82 period. The prices of major export commodities, except tea, declined gradually. The export price index for tea increased from 92 in 1979 to 103 in 1982 whereas, rubber declined from 132 to 120 and coconut products from 152 to 109. The price of paddy, on the other hand, increased from Rs.40 per bushel in 1979 to 62.50 in 1982.

In addition, the period 1979-82 was an era marked by significant structural changes in agriculture. Two noteworthy changes in production relations with considerable distributional implications took place. First, some lands vested under the Land Reform Act of 1972 were returned to the former owners [C.B.E.R. 1979 .p 37], and some of the government owned large plantations were leased to the private sector. Second, the 'Agrarian Services Act of 1979' brought significant reforms which potentially favoured the upper income groups in the peasant agriculture.

One of the principle elements of various agrarian reforms spreads over the period 1956 to 1975 was the limitation of the powers of landlords and the securing of the rights of the tenants [for a detailed discussion, see Abeysinghe (1978) and Bansil (1973)]. In contrast, the new act made provision to ensure the rights of the landlords and to limit the rights of the tenants. For example,

according to the Paddy land Act of 1956 the share-cropper was required to pay the landlord a rent of one-fifth of the yield or 15 bushels of paddy per acre, whichever was lower. The new law provided him with the same alternative, but enjoins him to pay whichever is greater. Another provision of this act was the imposition of limits on the extent of land which could be cultivated by a tenant, an upper limit of two hectares per tenant being imposed. However, there was no provision preventing an entrepreneur from possessing a large field 'rented in' from a multitude of peasants [Gunasinghe 1986].

The distributive implications of these reforms are obvious. The restructuring of agrarian relations favouring the landlords and the restoration of land ownership led to an improvement in the incomes of the upper income groups. In addition, one of the most influential factors which may have contributed to rising income inequality might have been the leasing of formally government owned large plantations to local entrepreneurs. Most of the large plantations prior to 1975 had been under foreign ownership and therefore had had little impact on the pattern of distribution of agricultural incomes in the economy. However, the large incomes generated in these plantations which were previously retained by foreigners or the government were now distributed among the local entrepreneurs. The cumulative impact of these changes in the structure of production relations is undoubtedly a significant contributor to the worsening of income inequality evident in 1982.

In summary, the foregoing analysis of pattern of distribution of personal incomes disaggregated by major industries highlights the distributional pattern associated with production processes in the economy. Significant differences in the patterns and changes of the distribution of personal incomes among major industries were found. Most of these changes are amenable to the change in various policies adopted by successive governments during the period under consideration. It might be asked what significance can be attached to these variations in inequality evident within and between industries and their changes on the determination of overall inequality. These issues are explored in the following section.

First, the quantitative significance of within and between industry inequality on the determination of overall inequality is analysed and second, their impact on changes in the overall inequality is discussed. Both these issues are studied using decomposition procedure explained in the early part of this chapter.

4.2 **The impact of the within and between industry inequality on the overall income inequality and their changes: A decomposition analysis.**

The overall income inequality assessed by Theil's "T" measure is decomposed into within and between industry inequality as indicated by the two terms of the equation [4.2] and numerical results are presented in Table 4.6. The first and second columns give respectively, the between and within-industry inequality values for each industry. Column 3 is the sum of col.1 and 11, denoting the aggregate contribution of each industry to the overall inequality; the forth column expresses these contributions in percentages.

The S-sector accounts for 44 to 80 percent of the overall income inequality and M and A-sectors, respectively, account for 15-26 and 6-26 percent. In general, the contribution of aggregate inequality of the A-sector to overall inequality is relatively low. For example, in 1963, the A-sector which represented over 50 percent of the total income recipients accounted for only .0313 of the overall Theil coefficient of .4360, or 7.15 percent of the total inequality. The service industry on the other hand, represented only 20 percent of the total income recipients, but the aggregate inequality of this sector contributed well over 80 percent of the total inequality. The contribution of aggregate inequality of the M-sector in which 13 percent of the labour force was employed is also relatively high, accounting for 16.2 percent or .0704 to the aggregate Theil coefficient. The aggregate inequality value assigned to the Other category has a negative value implying a negligible significance of the inequality of this group as a determinant of the overall

inequality in 1963.[6] A similar structure is evident in 1973, the service industry accounts for the highest contribution, followed by the M and A-sectors.

Significant changes in the contribution made by major industries to overall inequality are evident in 1979. The contribution of the aggregate inequality of the service industry reduces markedly, from 71.5 in 1973 to 44.2 percent in 1979 and the contribution of the all other sectors rises. The percentage contribution of the A-sector showed a significant increase i.e., from 5.8 to 23.4. The structure of inequality evident in 1982 compared with previous years marks a further change. The A-sector emerges as the second major contributor to the total inequality accounting for 25.6 percent of the total whilst the significance of the M-sector declined to 14.7 percent. The percentage contribution of the S-sector and the Other category rose to 48.6 and 11.5 percent respectively.

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[6] These statistical findings warrant some comments. In particular, it is important to show why the largest industry, namely agriculture makes the smallest contribution to the overall inequality? Two inter-related factors may be cited. First, though the A-sector represented the largest number of income recipients, the majority of them were low income earners. In 1963, approximately 77 percent of the total income recipients in the A-sector [accounting for 39 percent of the total income recipients in the whole economy] received incomes less than the national average; the corresponding proportions in the S and M-sectors were 40.6 and 51.8 percent [accounting for 8 and 7 percent of the total income recipients] respectively. Second, average incomes of the A-sector was also the lowest. Therefore, it is not surprising, despite the high contribution to the employment, lower the contribution of the inequality of this sector to the overall inequality, because most of the income recipients represent the lower end of the income scale. Similarly, over 80 percent of the income recipients in the Other category also received incomes less than the national average and the mean income of this group almost half the national average.

Table 4.6.
Decomposition of overall inequality by major industries.

	1963				1973			
	1 W	2 B	3 W+B	4 W+B%	1 W	2 B	3 W+B	4 W+B%
A-sector	.1316	-.1006	.0310	7.15	.0991	-.0827	.0164	5.80
M-sector	.0459	.0215	.0704	16.24	.0345	.0218	.0563	19.54
a.Manu.			[.0289]				[.0213]	
b.Cons.			[.0073]				[.0014]	
c.Tran.			[.0341]				[.0326]	
S-sector	.1528	.2047	.3576	82.51	.1018	.1006	.2024	71.52
a.Comm.			[.1276]				[.0776]	
b.Serv.			[.2327]				[.1247]	
Other	.0223	-.0478	-.0256	-5.91	.0159	-.0102	.0057	3.14
Total	.3526	.0834	.4360	100.00	.2526	.0285	.2797	100.00

	1979				1982			
	1 W	2 B	3 W+B	4 %	1 W	2 B	3 W+B	4 %
A-sector	.1652	-.0694	.0958	23.40	.1917	-.0684	.1232	25.64
M-sector	.0991	.0079	.1071	26.16	.0792	-.0085	.0707	14.71
a.Manu.			[.0663]				[.0373]	
b.Cons.			[.0047]				[.0072]	
c.Tran.			[.0390]				[.0262]	
S-sector	.1044	.0767	.1811	44.24	.1403	.0933	.2326	48.61
a.Comm.			[.0887]				[.1372]	
b.Serv.			[.0925]				[.0964]	
Other	.0290	.0013	-.0254	6.20	.0466	.0065	.0531	11.05
Total	.3978	.0165	.4142	100.00	.4577	.0228	.4806	100.00

An important fact evident from the decomposition results is that the prevailing inequality in the economy is due largely to the service industry. Despite its declining significance during the post 1973 period, the service industry remains as the single sector contributing a large proportion of the total inequality. Another important aspect evident from these results is that the change in the inequality of overall incomes over the 63-82 period was accompanied by significant changes in the production structure of the economy. This is reflected in the changing significance of aggregate within and between industry components. The contribution of the aggregate within-industry inequality rose over the 63-82 period [from 81 to 95

percent], while the contribution of the between-industry inequality declined [from 19-5 percent].

4.2.1 Sources of changes in overall inequality: Decomposition of change in the inequality

The numerical results of decomposition of change in overall inequality between sub periods as defined by the two terms in the eq. [4.3] are presented in Table 4.7. The first column represents inter-temporal change in the 'within-industry' inequality and column 11, the 'between-industry' inequality. Column 111 presents the sum of within and between-industry inequalities, denoting the net aggregate contribution made by each industry to the total change.

Table 4.7.
Factors contributing to the change in the inequality: decomposition of changes in inequality.

	1963-73			1973-79			1979-82		
	1 Within	2 Between	3 1+2	1 Within	2 Between	3 1+2	1 Within	2 Between	3 1+2
A-Sector	-.0325	.0179	-.0146	.0661	.0133	.0794	.0265	.0009	.0275
M-sector	-.0114	-.0037	-.0151	.0647	-.0130	.0517	-.0199	-.0164	-.0363
S-sector	-.0512	-.1068	-.1580	.0027	-.0239	-.0212	.0358	.0166	.0524
Other	-.0032	.0377	.0345	.0051	.0115	.0166	.0225	.0052	.027
Overall	-.0983	-.0554	-.1532	.1386	-.0121	.1265	.0649	.0064	.071

Both between and within-industry inequality components declined between 1963-73 thus, causing overall inequality to fall. The aggregate between inequality accounts for 36 percent of the total change and the within industry inequality for 64 percent. Between 1973-79, between-industry inequality was correlated negatively with rising income inequality implying that the change in the income inequality evident in this period was due solely to the rise in the within-industry inequality. Between 1979 and 82, both components were positively correlated with rising income inequality, aggregate within industry inequality being the major contributor accounting for 91 percent of the total change.

The inter-temporal changes in the within and between industry inequality with respect to major industrial groups provides a basis for identifying contributions made by each of these major industries to the overall change. The major contributor to the change in inequality between 63-73, as evident from Table 4.7, is the service industry. The aggregate inequality of the S-sector declined by -.1580 points and of the M and A-sectors, by -.0151 and -.0146 points respectively.

While the change in the overall income inequality between 1963-73 is due largely to reduced income inequality of the S-sector, the rise in the inequality evident between 1973-79 is due mainly to the increased inequality of the A and M-sectors, with the service industry being negatively correlated with such rises. The highest contribution to the increased inequality made by the A-sector, with the M-sector having a relatively less effect; aggregate changes amounting to 0.0794 and 0.0517 respectively. The A-sector continued to contribute to the sustained rise in the overall inequality evident in the period 1979-82, while the M-sector showed a negative contribution. The Service sector accounts for the highest contribution to the rising inequality viz, 0.0524 points and A-sector 0.0275.

4.3. Summary and Conclusions

In this chapter the pattern of distribution of incomes among industries and their changes over the 1963-82 period has been analysed. The motivation was to quantify the significance of the variations in the distribution of incomes within and between industries resulting from changing economic parameters. A review of the pattern of distribution of incomes between broad industrial categories was undertaken first. In 1963, such a pattern reflected the typical structure of a developing country in its early stage of development [Kuznets 1965]; the dominant A-sector, where average incomes are the lowest, a relatively large S-sector with extremely high levels of average incomes and the small M-sector with moderately high average incomes. While this pattern of distribution of incomes remained unaltered over the 1963-82 period, the inequality of

distribution of incomes between industries narrowed. This was reflected in the changing magnitudes of relative income coefficients, the measure used for inequality between industries.

Attention then switched to the examination of pattern of distribution of incomes within industries. Significant variations in the distributional patterns were found. An attempt was made to explain the sources of inequality of incomes among industries by referring to production relations which are unique to each industry. Over the 1963-82 period, both production relations and the growth pattern of the different sectors of the economy underwent significant structural changes; they were caused largely by the change in policy emphasis which altered the pattern of income distribution within industries. The impact of the policy induced changes on the pattern of distribution of incomes is reflected in the changing magnitudes of income inequality within major economic sectors over the 63-82 period and their contribution to overall inequality.

CHAPTER FIVE

DISTRIBUTION OF INCOMES AMONG ETHNIC GROUPS

Introduction

The pattern of income distribution in Sri Lanka is quite distinct from other countries: In particular, the degree of inequality observed in 1963, 1979 and 1982 is markedly higher than the average levels observed by Paukert [1973] for countries similar in their stage of development [Cf. figure 3.2, ch. 3]. Paukert also noted that at each stage of development, there are some countries whose income distributional patterns contrast sharply with the expected patterns. Deficiencies in data as he notes, cannot account for more than a minor part of the deviations [P. 122]. It is pertinent to ask whether these variations are due to the differences associated with such factors as social heterogeneity.

The literature suggests that the distribution of incomes in racially diversified communities are less egalitarian than in communities where members are predominantly of the same race [Lean 1975, Szal and Van der Hownes [1976], Lecaillon et. al [1984]. Factors which contribute to the high level of inequality in diversified communities, include: differences in attitudes towards work and risk [Esman 1972], inherent cultural backwardness [Parkinson 1967], educational attainment levels and associated occupational mobility [Hirshmans 1975], and access to wealth and participation [Snodgrass 1980]. In addition, the dominant racial group, specially if it is in political power, may attempt by various measures to consolidate and improve its position at the expense of other groups with the result that in the process of time the income distribution will become more skewed. Moreover, in a situation where a minority group is better off than the numerically dominant group, the minority group may be able to retain its economically superior position by virtue of its dominance in certain high-wage and profitable trading and commercial sectors of the economy [Pang 1976]. These factors together with the co-existence of dominating and under privileged groups within a community create persistent disparities in incomes

among persons in different ethnic groups. Such disparities as Lecaillion (1984) et. al notes, are among the most visible and most keenly felt manifestations of inequality of incomes [P.81].

One distinctive feature about Sri Lanka is the racial heterogeneity of its population, a product of the historical pattern of migration and colonialism. This small island of 25,000sq. miles in area, shelters 15 million people who belong to four major ethnic linguistic groups; the Sinhalese or 'Sinhala' the overwhelming majority, accounting more than 70 percent of the population; the Sri Lankan Tamils the second major group, accounting for 11 percent of the population; the Indian Tamils about 7 percent, and Moors about 7 percent. These four groups, according to the 1981 population census constitute 99.2 percent of the Sri Lankan population. The remaining 0.8 percent consists of burghers [Euro-Asians] [0.3%] Malays and other Asians [0.5%].

How incomes are distributed among these different racial groups and are there considerable differences in incomes between them? Do such differences in incomes constitutes significant part of the overall income inequality in the economy? What changes in the division of incomes could be observed during the last three decades in particular given differing growth patterns of the economy? These are important questions in their own right and have significant implications for inter-ethnic relations and for the continuing socio-economic progress and political stability of Sri Lanka. This is the issue being addressed in this chapter and more specifically, it attempts to answer the following questions:

a. How are incomes distributed within and between ethnic groups and what changes can be observed between 1963-82?

b. To what extent do racial income differences contribute to the overall income inequality in the economy,

c. Have past growth patterns altered economic inequalities between ethnic groups. Has growth for instance, compressed inter-racial income differences or enlarged them?

The chapter is organized as follows: In section one, a brief review of the institutional background is presented and section two examines

the pattern and changes in income inequality among ethnic groups. Section three analyses the relationship between racial income inequality and overall inequality in the economy. Economic growth and distributional equity is discussed in section four and a summary and conclusions constitute section five.

5.1 **Institutional Background**

Among four major ethnic groups mentioned earlier, the majority 'Sinhalese' are the earliest inhabitants of Sri Lanka and are descendants from the first colonists who occupied the island about the 5th century B.C. [Fernando et. al. 1979]. The Sinhalese, most of whom are Buddhists, speak a language, 'Sinhala', derived from several Indo-Aryan languages. The Sri Lankan Tamils [Sl. Tamils], the second majority, are descendants of the early Dravidian immigrants from South India. Although Sinhala settlements appear to have preceded the arrival of Tamils by several centuries, the latter have been inhabitants of the island from very early times [Fernando et.al., 1979]. They are predominantly 'Hindus' and speak 'Tamil', one of the major Dravidian Languages of South India. In contrast, the Indian Tamils [In. Tamils] have lived in the island for only a short period of time. They are the descendents of the labourers brought by British planters in the 19th century to work on Tea plantations. The Muslims or Moors are the descendants of early Arab traders who settled in Sri Lanka about 10 Century A.D. Although, early Muslim settlers were Arab traders, their numbers were augmented by a steady flow of Indian Muslim migrants. [Arasaratnum 1964]. Today they are completely Sri Lankanized group with a strong religious identity.Among other small communities, the Burghers are the descendants of European officials who worked for the Dutch East India Company during the 16-17th Century. They are predominantly Christians and speak English as their home language.[1]

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[1] The group includes the descendants of other Europeans- British and Portuguese and Dutch.

These racial groups remain distinct, despite cultural and linguistic similarities. For instance, the Sl Tamil and the In. Tamil share a common language and religious belief. The Sl. Tamils as inhabitants of Sri Lanka for thousands of years are an economically well to do powerful community with strong racial sentiment. On the other hand, In.Tamils are generally economically backward and under privileged. The Muslims also speak Tamil as their home language but there is hardly any social link between Muslims and Tamils. The religious differences between these two groups stand them apart as quite distinct races. Perhaps the most poignant cultural distinction is that between the majority Sinhalese and Sl.Tamils. Historically these two ethnic groups have had minimal contact with each other through centuries [Fernando et. al. 1974]. The distinction between their religions and language is sharpened by their geographical isolation, the Sinhalese located in the southern and western area of the island and the Sl. Tamils in the north and east.

The majority Sinhalese are typically engaged in traditional agriculture, an overwhelming majority of them being concentrated in rural areas. The In.Tamils, traditionally plantation workers, are largely concentrated in the estate sector. The Sl.Tamils are found in a wide spectrum of occupations with a relatively high degree of urbanization. The Moors are the leading group in trade and are highly urbanized.

5.1.1. **Data and method of study.**

Unlike the previous analysis, the present study is carried out using only data from three of the surveys, 1963, 73 and 82 as published data of 1979 survey do not include data on incomes of ethnic groups. The surveys of 1963, 1973 and 1982 provide personal income data for nine ethnic groups classified by sector of location[2]; namely urban, rural and estate. For the purpose of this study these groups are classified into four mutually exclusive categories- namely [1]

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[2] The terms, 'sector', 'socio-economic regions' and 'sector of location' will be used interchangbly throughout this chapter.

the Sinhalese representing the Up-country and Low-country Sinhalese as distinguished in the surveys, [2] the Sl. Tamils, [3] In. Tamils and [4] Others which consist of the remaining races; the Moors, Burgers, Europeans, Malays and others. The Moors are the dominant group in this category, accounting for some 95 percent.

5.2. **Patterns of Distribution of Personal Incomes by Ethnic Groups: An Overview**

Table 5.1 summarizes the size distribution of personal incomes among different ethnic groups derived from the C.F.S survey in 1963, 1973 and 1982. Columns 1 and 2 represent respectively, the relative proportion of the income recipients (Irs.%) and corresponding income shares (Y%) of each ethnic group and column 3, presents the mean monthly incomes expressed in current prices [Rs].

Table 5.1

The Distribution of Personal Incomes among ethnic groups

	1963			1973			1982		
	Irs.	Y %	Rs.	Irs.	Y%	Rs.	Irs.	Y%	Rs.
Sinhalese	65.90	64.41	131	66.86	70.94	241	72.23	75.42	1160
Sl.Tamils	12.36	15.15	164	10.77	11.13	235	10.88	11.64	1189
In.Tamils	14.45	8.00	74	15.77	7.81	125	10.97	5.11	516
Others	7.29	12.44	228	6.60	10.12	336	5.92	7.83	1413
Total	100.00	100.00	134	100.00	100.00	228	100.00	100.00	1111

Source: CFS., 1963, Tables, IR. 7.00-10: 1973, Tables I. 92-94: 1982, Tables, 5.74-94.

There are significant differences in the distribution of incomes between groups and in general, the Others have the highest mean incomes and the lowest among the In.Tamils. Mean incomes of the Sinhalese and the Sl. Tamils are comparable except in 1963, where Sl.Tamils' mean income exceeds the Sinhalese figure by about 25 percent.

Two explanations may be advanced for the wide dispersion in mean incomes between ethnic groups; differences in personal attributes

among groups and structural rigidities which impose various restrictions on the economic opportunities for different groups. The variations in personal attributes such as the level of education and training, access to capital and wealth, are influential factors affecting the incomes of individuals. Among the four major racial groups, In.Tamils are the adversely affected, most of them are landless labourers with little or no accumulated physical or human capital. The latter is evident from the low value of the educational attainment index constructed by the Central Bank of Sri Lanka (which is based on the years of schooling). In 1973 for instance, the value of this index for the In.Tamils was 1.89 compared with 4.16, 3.54 and 5.18 for the Sinhalese, Sl.Tamils and the Others respectively.

Table 5.2
Distribution of economically active population among occupations by industry 1963

Industry and ISIC occup.code	Proportion of population and Mean incomes (Y) Sinhala	Sl.Tamil	In.Tamils	Others	Y (Rs.
01-04 Agricul.	47.3%	47.1%	91.3%	28.6%	103
14-39 Manufact.	9.0%	9.0%	.8%	5.2%	134
40 Construction	2.4%	1.6%	0.0	1.7%	151
51,52,81-85 Serv	14.7%	21.5%	2.2%	17.7%	250
81 Govt. Service	(2.6%)	(3.8%)	(0.0)	(2.8%)	195
82 Community "	(5.1%)	(7.1%)	(0.8%)	(3.7%)	289
83 Business "	(1.3%)	(3.4%)	(0.9%)	(5.6%)	475
61-67 Commerce	7.3%	8.4%	3.9%	26.8%	229
71-73 Transport	5.6%	3.7%	.5%	4.6%	192
90 Unclassified	13.6	8.7%	1.3%	15.4%	85
Total	100.0	100.0	100.0	100.0	134

Note : Totals may not add to 100 due to rounding
Source; C.F.S, 1963, Tables P 5.06 [a-c].

The differences in personal attributes among different ethnic groups are reflected in the occupational structure of specific groups given in the the Table 5.2. Over 90 percent of the economically active population of Indian Tamils was engaged in agriculture where average income per head was the lowest among major industrial sectors. On the other hand, the relative proportion of the population of the

Others in agriculture was the lowest of all the groups and the highest in commerce and service industries where average incomes were the highest. Nearly 50 percent of the economically active population of the Sinhalese and the Sl.Tamils were also engaged in agriculture. However, the proportion of the Sl.Tamil community whose occupations are in the highly remunerative service sector are relatively greater than the Sinhalese (i.e. 14.7 and 21.7 percent respectively), as is their mean income.

Table 5.3
Distribution of Income recipients [Irs] and the mean incomes [Y] of the ethnic groups by socio-economic regions [sectors]

	Sinhala		Sl.Tamils		In.Tamils		Others		All
	Irs [%]	Y Rs.	Irs [%]	Y Rs.	Irs [%]	Y Rs.	Irs [%]	Y Rs.	Y Rs.
1963									
Urban	12.4	224	25.6	259	3.3	268	40.9	335	225
Rural	82.0	121	56.2	151	5.0	185	53.1	145	127
Estate	5.6	63	18.2	68	91.7	61	6.0	150	65
Overall	100.0	131	100.0	164	100.0	74	100.0	228	134
1973									
Urban	16.7	331	25.9	290	5.4	212	41.5	316	317
Rural	81.5	224	55.9	243	4.5	160	53.7	371	233
Estate	1.8	194	18.2	132	90.1	104	4.8	379	119
Total	100.0	241	100.0	235	100.0	125	100.0	336	228
1982									
Urban	17.1	1667	34.4	1526	5.1	1731	45.0	1543	1625
Rural	81.2	1066	57.3	1097	11.2	613	54.5	1416	1093
Estate	1.7	592	8.3	428	83.7	429	.5	971	449
Total	100.0	1160	100.0	1189	100.0	516	100.0	1413	1111

Notes : Irs = Relative proportion of income recipients, (%) Y = Mean income per month in current prices.

The impact of the structural rigidity of the economy which imposes varying restriction on economic opportunities for each group is reflected in the data given in the Table 5.3 which contains a breakdown of sub-group mean incomes by sector of location. In general, urban incomes are the highest among all groups and the lowest in the estate sector. The employment opportunities available in the estate sector is limited and unskilled agricultural workers are paid low wages, therefore income per head in this sector is naturally low. Similarly, the majority in the rural sector is also engaged in

agriculture and consequently average incomes are low. In contrast, the urban sector provides diverse economic and employment opportunities with high returns and therefore income per head in this sector is significantly higher than the other two socio-economic sectors.

These structural ridigities, coupled with the historical patterns of location of different groups in the different socio-economic sectors of the economy, add an additional dimension to the determination of the overall income of each sub-group of the population. For instance, the small proportion of In.Tamils located in urban and rural sectors in 1963 have higher mean incomes than the remaining three groups, but a majority of them are located in the estate sector, where mean incomes are the lowest. The Sinhalese have the second lowest average incomes [except in 1973] and over 80 percent of them are located in the rural sector where average incomes are significantly lower than the urban sector. On the other hand, the proportion of the population of the Other and Sl.Tamils located in the urban sector are relatively high and the overall incomes of these two groups are also higher than the remaining two groups.

In summary, the following picture emerges from the economic positions of different races in Sri Lanka. First, all minority groups, with the exception of In.Tamils, are economically superior than the numerical majority, the Sinhalese. Their average incomes are significantly lower than the ethnic group- the Others as well as the Sl. Tamils, with the exception of 1973. Further, Both Sl.Tamils and the Others are the dominant groups in trade and high-wage service sectors of the economy. The In.Tamils, on the other hand are the most disadvantaged group and their relative position remains unaltered over the 1963-82 period.

5.2.1 **The Distribution of Incomes within Ethnic Groups: Relative income inequality.**

Table 5.4 presents the estimates of G and T measures of income inequality for each group classified by sector of location, together with estimates of overall income inequality for each group.

Table 5.4
Inequality of incomes among sub-groups by sector of location

	Urban		Rural		Estate		Overall	
	G	T	G	T	G	T	G	T
1963								
Sinhala	.52	.54	.48	.40	.19	.10	.49	.37
Sl.Tamils	.52	.52	.50	.43	.34	.19	.49	.43
In.Tamils	.61	.71	.58	.73	.26	.12	.42	.22
Others	.58	.66	.46	.36	.70	1.49	.59	.58
1973								
Sinhala	.40	.27	.36	.22	.51	.66	.39	.24
Sl.Tamils	.42	.28	.35	.19	.39	.32	.40	.25
In.Tamils	.29	.10	.39	.28	.33	.17	.35	.22
Others	.41	.28	.48	.46	.76	.85	.45	.32
1982								
Sinhala	.56	.62	.50	.50	.39	.32	.52	.45
Sl.Tamils	.54	.61	.50	.42	.25	.11	.52	.50
In.Tamils	.70	.81	.44	.38	.31	.17	.41	.26
Others	.53	.56	.53	.59	.45	.43	.52	.45

Estimated from data given in the source table 5.3.

The overall degree of income inequality among the sub-groups of the population varies: The Others have the most widely dispersed incomes, and In.Tamils have the least dispersed incomes. The degree of inequality assessed by the Gini measure indicates that the overall inequality of incomes of the Sinhalese and the Sl.Tamils is almost identical. However, Theil's index indicates a relatively higher degree of inequality among Sl.Tamils than the Sinhalese.

When one moves from the overall inequality of ethnic groups to sectoral inequality, no consistent pattern is evident. The inequality of incomes among ethnic groups varies significantly across the sectors; the overall inequality of the Indian Tamils' for example, was the lowest in 1963, but the inequality of incomes of this group located in the urban and rural sectors are greater than any other group. A similar pattern was evident in 1982. On the other hand, inequality of incomes among the Sinhalese and Sl.Tamils in rural and urban sectors is comparable in each year, but inequality of incomes among these two groups varies in the estate sector. In 1963, both G and T indicated a relatively higher degree of inequality among Sl.Tamils than among the Sinhalese, but in 1973 and 82, inequality of incomes of the Sinhalese was significantly higher than the Sl.Tamils.

The ranking of major ethnic groups on the criterion of income dispersion accords with the ranking of mean incomes: the higher the group's mean income [cf. data given in the Table 5.3], the greater is the degree of inequality. In 1963 and 73 for example, the urban In.Tamils had the highest mean incomes amongst all groups and also the highest degree of inequality. Similarly, mean incomes of the Others was the highest in each sample period as was the degree of inequality.

Further insights into the pattern of income inequality among the sub-groups of the population can be observed from the Table 5.5, where the overall income inequality of each group is decomposed according to sectors of location.

Table 5.5
Decomposition of sub-group inequality by sector of location

	Contribution of sectoral inequalities to overall inequality				
	Within[%]			Between	Total
	Urban	Rural	Estate	[%]	
1963					
Sinhala	24.3	66.9	0.6	8.2	100.0
Sl.Tamils	39.9	42.3	2.9	14.9	100.0
In.Tamils	22.2	22.9	18.9	34.0	100.0
Others	59.5	20.1	9.7	10.7	100.0
1973					
Sinhala	24.7	66.4	3.8	5.1	100.0
Sl.Tamils	34.5	42.3	12.6	10.7	100.0
In.Tamils	5.3	9.2	73.1	12.4	100.0
Others	27.2	57.7	13.9	1.1	100.0
1982					
Sinhala	27.9	68.1	0.5	3.7	100.0
Sl.Tamils	50.1	41.6	1.5	6.9	100.0
In.Tamils	34.0	12.3	28.9	24.7	100.0
Others	45.6	54.1	0.2	0.1	100.0

Table 5.5 suggests that, in general, the prevailing income inequalities of two Tamil communities are associated with relatively high levels of between-sector inequality compared with the other two groups. In 1963, in terms of the T measure, between-sector inequality of In. and Sl.Tamils accounted for 15 and 34 percent of the overall inequality and the corresponding values for Sinhalese and Others were 8 and 11 percent respectively. A similar pattern was evident in 1973 and 82, where the contribution of the between-sector

inequality to overall inequality of Sl and In.Tamils remained at a high level relative to the Sinhalese and the Others.

With respect to inequality within sectors, urban inequality contributes a significant proportion of overall income inequality for each group. For instance, in 1963, inequality within the urban sector alone contributed over 24 percent of the overall inequality of the Sinhalese though only 12.3 percent of the total income recipients of this group were located in this sector. In contrast, the rural sector where 82 percent of the income recipients of the Sinhalese were located accounted only for 67 percent of the overall income inequality of this group. Similarly, inequality within the urban sector accounted for 34 percent of the overall income inequality of In.Tamils in 1963, but only 3.3 percent of income recipients of this group were located in the urban sector. Urban inequality accounted for 39.9 and 59.5 percent of the overall inequality of the Sl.Tamils and the Others and the corresponding population shares for these two groups were respectively, 25.5 and 40.9 percent. Having noted the general pattern of distribution of incomes between and within ethnic groups in the initial year of study, let us now review the change in income inequality over the 1963-82 period.

5.2.2 **Changes in the Pattern of Income Inequality of Ethnic Groups.**

Changes in the overall income inequality of ethnic groups over the 1963-82 period are consistent with the change in overall income inequality in the economy: Between 1963-73, overall income inequality of each group declined and increased between 1973-82 [cf. Table 5.4]. While inequality of incomes among ethnic groups changed in two different directions over the 1963-82 period, it is noteworthy that, the inequality between sectors for each group [with the exception of In.Tamils between 1973-82] continued to decline. This is more pronounced among the Others, for instance, the relative contribution of between sector inequality of this group to overall inequality declined from 10.7 percent in 1963 to 0.1 percent in 1982. Thus the rapid increase in inequality among ethnic groups between 1973-82 [with the exception of In.Tamils] is due to the rise in inequality within sectors.

While there is an apparent consistency in the change in overall income inequality of ethnic groups, there are significant differences in the rate of change. For example, between 1963-73, the largest decrease in income inequality is seen among the Others [the Gini coefficient declined by 24 percent, from 0.59 to 0.44] and lowest among the In.Tamils [the Gini coefficient declined by 16 percent]. The rate of decline in income inequality among the Sinhalese and the Sl.Tamils is almost identical, the Gini coefficient for respective groups declined by 19.6 and 18.2 percent respectively. In contrast, between 1973-82, the highest increase in income inequality is seen among the Sinhalese and Sl.Tamils, the Gini coefficient increased by 32 and 31 percent respectively [i.e., from 0.39 to 0.52 and from 0.40 to 0.52], whereas for the Others the Gini coefficient declined only by 16.2 percent [from .44 to .52]. Between both sub periods, the rate of change in income inequality of In.Tamils was the smallest.

Most of these changes are due to changes in inequality within the urban sector, in particular in the case of the Others and In. Tamils. This is evident from the sharp decline in the relative significance of urban inequality to overall income inequality for these groups. The relative contribution of urban inequality for the Others declined from 59.5 percent in 1963 to 27.2 percent in 1973 and from 22.2 to 5.3 for the In.Tamils. The relative significance of urban inequality increases for each group between 1973-82. The percentage contribution of urban inequality for Sl.Tamils, Others and In. Tamils rose to 50, 46 and 34 percent respectively while for the Sinhalese, it increased only marginally [i.e. from 24.7 in 1973 to 27.9 in 1982].

In summary, the division of incomes between and within major ethnic groups varies significantly; incomes are most unequally distributed between the Others and the In.Tamils. The difference between the division of incomes of the Sinhalese and the Sl. Tamils is however, negligible. Mean incomes of these two groups for example, except in 1963, differ marginally. Similarly, the degree of income inequality of these two groups are almost identical. Moreover, changes in income inequality of these two groups over the 1963-82

period are also identical. There are also significant differences in distribution of incomes of ethnic groups across the socio-economic regions; In general, urban inequality constitutes a larger proportion of inequality of each group. Much of the changes in income inequality among sub-groups, with the exception of Sinhalese, evident between 1963-82 are due to the changes in income inequality of urban sector.

5.3 The impact of racial income differences on the overall inequality in the economy.

It was revealed in the preceding discussion that there were significant differences in the division of incomes between ethnic groups both overall and sector-wise. The discussion to follow is an attempt to identify the quantitative significance of these variations on overall income inequality in the economy. Following the general approach of the study we decompose the overall inequality into the components 'between' and 'within groups' and the numerical results are presented in Table 5.6.

Table 5.6.
Decomposition of overall income inequality by Ethnic groups.

		Decomposition by Race		Race + Location		
Between	.0358	.0331	.0203	.0692	.0492	.0421
Within	.3988	.2395	.4361	.3654	.2234	.4143
Total	.4346	.2726	.4564	.4346	.2726	.4564
Between/ Total[%]	8.23	12.14	4.45	15.92	18.04	9.22

In 1963, 'between group [race]' inequality accounted for 0.0358 of the overall Theil coefficient of 0.43, or 8.2 percent of the overall income inequality. The corresponding values for 1973 and 82 are respectively 0.033 in 1973 and 0.02. These results suggest that racial income differences constitutes only a small proportion of the personal income distribution of the Sri Lankan economy. This point becomes much clearer when one interprets the 'between-group' inequality as the inequality that would exist if all within group

income inequalities are eliminated [Anand 1984]. Thus, for instance, Theil's T measure yields a between-group contribution of 8.2 percent implies that if the between-group differences in mean incomes were eliminated, but inequality within each group remained the same, the reduction of overall income inequality would be 8.2 percent in 1963.

A slightly different picture emerges when one considers the racial income differences according to the sectors of location [cf. figures given in columns 4-6 of the table 5.8]. The differences in mean incomes among ethnic groups between sectors constitutes a significant proportion of overall income inequality and in 1963 for instance, racial-cum sectoral between-group inequality accounted for 16 percent of the overall income inequality compared with 8 percent as revealed from the previous decomposition. Thus the sectoral differences in mean incomes of ethnic group influences overall income inequality significantly. This finding appears to to be consistent with the results from other racially diversified countries: According to the Study by Anand [1984] for instance, the racial-cum sectoral [urban and rural only] inequality measured by Theil's T measure accounted for 15 percent of the overall personal income inequality in Malaysia and racial income differences alone accounted for 9.2 percent of the overall income inequality.

One noteworthy feature evident from the movements of the 'between-group' component over the 1963-82 period is the steady decline of inter-racial income differences. Between 1963-73, the value of 'between-group' component of the T measure declined by 7.5 percent and between 1973-82, by 38.7 percent. The percentage contribution of 'between-group' inequality to overall inequality declined from 8.2 to 4.45 percent between 1963 and 82. Similar changes are evident in the race-cum sectoral inequalities, its percentage contribution declines from 16 to 9 percent between 1963-82 and the value of 'between-group' component declines by 64 percent.

5.4 Economic Growth and Distributive Equity among Ethnic groups

A final question of interest with respect to ethnic groups concerns the growth of the Sri Lankan economy. Have all groups shared the benefits of economic growth equally in periods of differing growth rates? One way of addressing this issue is to consider the two immediate implications of economic growth - the growth of incomes and the growth of employment with respect to different ethnic groups. The former is readily observable, however, the latter is not straight forward since the effects of growth on employment depend on the nature of activity in which the process started and its indirect effects felt through the growth of other activities. Moreover, growth may not necessarily create ample employment if the chosen technology is for example capital intensive. Similarly, growth in some sectors may not create significant and visible employment due to structural factors such as under and hidden unemployment.

Table 5.7
Income growth and changes in the level of unemployment among ethnic groups [income [Rs.] per month at 1963 prices].

Ethnic group	Mean[Rs.]	% change	Unemployment[%]	% change
Sinhalese				
1963	131		15.6	
1973	171	30.6	37.5	+140.4
1982	241	41.1	13.3	- 64.5
Sl.Tamils				
1963	161		11.6	
1973	167	1.8	17.7	+ 52.6
1982	247	48.1	6.7	- 62.2
In.Tamils				
1963	74		6.7	
1973	89	19.9	12.3	+ 83.6
1982	107	21.0	4.9	- 60.2
Others				
1963	228		14.5	
1973	239	4.8	28.7	+ 97.3
1982	294	23.0	12.0	- 58.2
All Groups				
1963	134		13.6	
1973	162	20.9	24.0	+ 74.0
1982	244	50.6	11.7	- 54.1

Table 5.7 represents changes in the real incomes of ethnic groups [at 1963 prices] between sub periods, together with levels and changes in unemployment [as a proportion of work force]. The significant changes that took place in Sri Lanka over the 1963-82 period are reflected in the distributional patterns of different ethnic groups. Between 1963-73, real incomes of both the Sinhalese and In.Tamils increased substantially, well over the national average. Income gains of the Sl.Tamils and the Others, however, have lagged behind the growth in overall incomes, which indicated a 21 percent increase during this period. Between 1973-82, real incomes of all groups rises significantly: The highest rate of increase is evident among Sl.Tamils, followed by the Sinhalese and the Others and the lowest among the In.Tamils. The varying rates of growth of incomes evident between the 1963-82 period indicate that the growth and associated distributional pattern of the economy between 63 and 73 has been biased towards the majority Sinhalese and minority In.Tamils, while the period 1973-82 is one in which a more equitable distribution of growth among ethnic groups has been achieved.

What are the factors contributing to the apparent differences in the growth rates of incomes among ethnic groups between sub-periods? How and why in a period where the economy grew slowly, incomes of some groups increased? Is this due to economic discrimination in one form or another, or is this a natural outcome of the particular growth trends and the type of development occurring in this period? The first question arises naturally because, the growth pattern of the economy during this period was influenced by a government in which the political power resided with the majority Sinhalese. Indeed, majority Sinhalese enjoy political power throughout the period under consideration, but the policy adopted by the government since 1977 was one which laissez-faire oriented and less government participation in economic activities.

'Discrimination' is a term always connected with minorities, but one should clearly distinguish 'economic discrimination' as oppose to other forms of discrimination [for example, political discrimination]. According to Becker [1971], economic discrimination in a competitive

society is related to economic minorities. In this context, both the Others and Sl.Tamils who experienced an almost zero growth in their incomes between 1963-73, are economic majorities though they are numerical minorities. Therefore, to see economic discrimination as a possible cause underlying the stagnation of incomes of the Sl.Tamils and the Others is not a reasonable proposition. Further, though the government intervined in regulating economic activities and personal wealth, there were no deliberate policies either directly or indirectly discriminate against particular groups. Therefore we emphasize economic explanations, the particular growth pattern of the economy and its distributive implications.

One way of evaluating the impact of the growth of the economy on the division of incomes among its population is to examine the participation by different groups in different economic activities. Such a comparison in terms of different ethnic groups however is not possible due to data limitations. However, data are available according to different socio-economic regions which are closely linked to the major economic activities of the economy. For instance, the urban sector predominantly consists of manufacturing and service industries and the rural sector traditional agriculture. The estate sector, on the other hand, is devoted to plantation agriculture. Thus, growth of incomes resulting from growth of the major economic sectors of the economy should be reflected in the average levels of incomes among different groups in different sectors of the economy. Thus, on the basis of change in incomes of ethnic groups in different socio-economic regions a broad picture about the impact of the growth pattern on the determinants and changes of incomes among ethnic groups may be observed. These data are given in the Table 5.8.

Among three socio-economic sectors, urban real incomes declines between 1963-73 while they increase in the rural and estate sectors. These changes accord with the general growth pattern of the economy during this period which was biased towards the rural sector. The traditional agriculture in particular grew rapidly, while both manufacturing and service industries, in particular trade, lagged behind [see ch. 3 and 4]. Real incomes of all groups in the urban

sector, with the exception of the Sinhalese, fell and the largest fall was among the In.Tamils, followed by the Others and the smallest among Sl.Tamils. On the other hand, real incomes of all groups in the rural sector, with the exception of In. Tamils, experienced a significant growth, the largest gain being made by the Others. Similarly, all groups in the estate sector experienced a real gain in their average incomes. Thus the negligible growth of real incomes of the Sl.Tamils and the Others evident between 1963-73 period may be mainly attributable to the negative growth of incomes of these two groups located in the urban sector.

Table 5.8
Changes of real incomes of ethnic groups by sector of location

	Urban		Rural		Estate	
	63-73	73-82	63-73	73-82	63-73	73-82
Sinhalese	4.9	47.7	31.4	39.6	119.0	-10.8
Sl.Tamils	-20.5	53.9	14.6	31.8	38.2	- 5.3
In.Tamils	-43.6	138.4	-38.4	12.3	21.3	20.3
Others	-33.1	43.3	81.4	12.2	79.3	-24.9
All Groups	-11.7	50.2	30.2	37.5	30.0	10.6

Source: Estimated from Table 5.4. Deflator- GDP.

In the face of declining real incomes in the urban sector however, the Sinhalese experienced a real gain in their real incomes. Does this indicate a possible bias towards changing pattern of incomes of the majority Sinhalese? To answer this question it is necessary that to compare the changes in the occupational structure of different groups in this particular sector.

One of the noteworthy differences evident from the urban occupational structure given in the Table 5.10 between 1963 and 73 is the declining significance of commerce and business services as a source of occupation for each group. Such changes accord with the general growth pattern of the commerce sector, which was subject to severe constraints between 1963 and 1973. The reduction in the volume of foreign trade could have naturally reduced the employment

opportunities in the business service sector and in general the profitability of the commerce sector as a whole. The changes however, are more pronounced for the Sl.Tamils and Others. The proportion of the Sl. Tamils and Others engaged in commerce and business service sector declined respectively, from 21.7 to 9.3 and from 13 to 7.5 percent.

Table 5.9
Changes in occupation structure by industry, urban sector - 1963,73

Industry	63	73	63	73	63	73	63	73
	Sinhala		Sl.Tamil		In.Tamils		Others	
Agricul.	6.8	6.8	12.5	15.2	25.0	19.3	13.1	7.0
Manufact.	30.4	28.9	32.9	19.2	-	14.5	16.7	17.5
Serv	40.2	40.0	46.0	48.9	50.0	35.5	24.4	31.4
Govt. Service	9.7	12.9	10.8	9.3	-	8.1	6.3	9.0
Business "	13.0	12.1	21.7	9.3	30.0	3.2	13.1	7.5
Other "	17.5	15.0	13.5	30.3	20.0	24.2	5.0	14.9
Commerce	11.5	14.4	14.0	8.3	10.0	25.8	28.5	28.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

In addition to the loss of the traditional occupational supremacy enjoyed by the Sl.Tamils and the Others in the high income yielding commerce and business sector, the readjustment of the occupational structure of these two groups is biased towards the low income yielding sub service sector- other services [cf. mean incomes for each service sector given in ch.4, Table 4.9]. The proportion of urban income recipients belonging to the other services category increased from 14.9 to 33.2 and 6.0 to 17.8 per cent respectively for SL. Tamils and the Others. These changes, a consequence of economic policies prevailing throughout the period 1963-73, seem to be a major factor behind the reduction in the real income of the Others and Sl.Tamils.

The link between the sharp reductions of the urban real incomes and the overall incomes of the Sl.Tamils and the Others become clearer when one considers the composition of income recipients belonging to each ethnic group. (see Table 5.4) A relatively larger proportion of income recipients of the ethnic groups Sl.Tamils [about 25 percent]

and Others [about 40 percent] were located in the urban sector compared with the other two ethnic groups. Although the average level of income of the Sl.Tamils and the Others in the rural sector is higher than the Sinhalese in all survey periods [Cf. table 5.4], and they also have experienced a significant gain in real incomes between 1963-73, such improvements have not been sufficient to bring about an improvement of the overall income of these two groups. On the other hand, In.Tamils experienced the greatest fall in real incomes both in urban and rural sectors. Despite this, the overall income of this group rose significantly as the majority of them were located in the estate sector where average incomes rose significantly.

The major inference that could be drawn from this discussion is that, differences in the growth rates of incomes among ethnic groups over the 1963-73 period is a consequence of the particular growth pattern of the economy and the differences in participation by different ethnic groups. One should not however, rely heavily on changes in income levels alone in explaining growth and equity. This follows because the average income of a particular group could rise while leaving the majority of the population in the same group unemployed. Therefore, an examination of the changes in the unemployment level with respect to different ethnic groups may provide an additional insight into the growth and equity relation. These data are presented in columns 4-5 in the table 5.10. Between 1963 and 1973, unemployment as a percentage of the total work force in the economy rose from 13.6 percent to 24 percent, a 74 percent increase. The unemployment among the Sinhalese increases at a higher rate than any of the group [by 140 percent], followed by the Others [97 percent] and the In.Tamils [87 percent]. The lowest rate of increase is evident among the Sl.Tamils, i.e., by 53 percent. Unemployment among the total work force declines significantly between 1973 and 1982 [by 50 percent], and the level of unemployment among Sl.Tamils and In.Tamils dropped from 17.7 to 6.7 and 12.3 to 4.9 percent respectively. Although such a large reduction in unemployment was not evident among the remaining two groups, they also have shared increased employment between 1973-82.

To summarize, in this section we have examined growth and distributive equity in terms of different ethnic groups. The evidence assembled and analysed indicates that all groups have shared the benefits of growth fairly in particular between 1973 and 1982, when the economy experienced an impressive rate of growth. The apparent variations in growth of incomes among ethnic groups evident over the 1963-1973 seems to be largely due to the structural factors and the particular growth trends of the economy. This assertion is well supported by the evidence of the change in the employment structure of different groups.

5.4 **Summary and conclusions.**

This chapter has examined the pattern of distribution of personal incomes and changes among major ethnic groups. The major findings are summarized as follows: The incomes of the In.Tamils are more equally distributed than either the Sinhalese or the Sl.Tamils and the greatest income dispersion is found among the Others. The inequality of incomes among two Tamil groups are associated with relatively large differences in incomes between sectors. The racial income differences constitute only small proportion of overall income inequality and its significance declined between 1963-82. There was a tendency between 1963-73, for that mean incomes of the majority Sinhalese to rise relative to the remaining groups and in particular the Sl.Tamils. However, this reversed between 1973-82 and as in the initial year of the study, majority Sinhalese rank third in terms of overall mean incomes of ethnic groups at the terminal year of the study.

Finally, it is appropriate to comment on the implications of distributional patterns and their changes in the context of current social unrest in Sri Lanka, namely the Sl.Tamils' struggle for separate state. One of the proposition suggested in political and international circles is that the growing racial strife between the majority Sinhalese and the Sl. Tamils is explained by economic parameters and in particular, there is the view that the Sl. Tamil community has been disadvantaged or discriminated against. The evidence we have assembled and analysed in this study however, does

not indicate any economic biases that may have intensified the current cultural divisions in this nation. One might be tempted to give some credence to the decline in the mean incomes of the Sl.Tamils relative to the Sinhalese between 1963-73 as a factor which may have contributed to sharpening of differences between two groups, but to counter this, we observe the high unemployment among the Sinhalese in comparison with Sl.Tamils. Throughout the period under consideration the highest incidence of unemployment was found among the Sinhalese and the lowest among the Sl.Tamils with exception of 1982, where, the lowest unemployment was found among the In.Tamils. Further Sl. Tamils are not an economic minority and perhaps the major differences in terms of economic status are not with the Sinhalese but largely with the other Tamil community- the In.Tamils and the members of Sl. Tamil community themselves located in different socio-economic regions. This latter inference is drawn from the relatively high degree of income inequality among Sl.Tamils as reveled by the T measure and a relatively high contribution of sectoral income differences to the overall income inequality of this group. It seems from this evidence that the economic inequality hypothesis as an explanation of the racial strife in Sri Lanka is intuitive and not supported by this evidence.

CHAPTER SIX

INCOME DISTRIBUTION AND POVERTY: A REVIEW OF THE LITERATURE

Introduction.

The major concern of the last three chapters was with the identification and explanation of patterns and changes of the distribution of personal incomes over the 1963-82 period. Now we turn our attention to the evaluation of the welfare implications of the observed patterns of income distribution, an issue we have ignored sofar.

There are two approaches for evaluating the economic welfare of the population, the inequality approach and the poverty approach. According to the former approach, some welfare evaluations of a given distribution of incomes are made on the basis of measured degree of income inequality. Incomes of individuals or household are considered to be representing his consumption opportunities and therefore his standard of living or more generally, economic welfare [Bentzel 1970]. Thus lesser the degree of income inequality variations in the standard of living will be lower and vice-versa [Sen, 1973].

The poverty approach, on the other hand, seeks to evaluate the welfare of people on the basis of some welfare norm. More specifically and unlike the inequality approach, the poverty approach evaluates actual welfare which may be derived from a given level of income. For example, the ability of an individual or a household to realize a given level of consumption of a basket of goods. Larger the number of people who fail to enjoy a given level of consumption, smaller will be the overall living standards of society.

The inequality approach is as an indirect method of evaluating economic welfare, because it does not consider actual consumption as such, but implied or potential consumption. The poverty approach, on the other hand, is the direct method as it considers both income and consumption. Moreover, poverty is more appropriate method to

evaluate the change in living standards of a developing country and employ the poverty approach to evaluate the level and change of the economic welfare of the Sri Lankan population over the period 1963-1982. Here we adopt the general convention that 'poverty is a state of low welfare'.

Whether poverty is considered as a socio-economic phenomenon needing attention or as a outcome of a prevailing distributional pattern of incomes of an economy, it is necessary that various conceptual and methodological issues relating to studying poverty to be first clarified. This chapter is therefore devoted to discuss various issues, both conceptual and methodological, involved in the study of poverty. Such a review is necessary in order to justify the appropriateness of our framework for studying poverty. Any descriptive study of poverty requires; a clearly defined operational concept of poverty, a method to identify the poor and an index to measure the extent of poverty or by implication, economic welfare. These issues are discussed in the following order; Section one briefly outlines the economic notion of poverty, section two reviews various poverty identification measures developed in the literature, where we also specify our approach. Section three reviews various indices of poverty.

6.1. **The Concept of Poverty.**

'Poverty' is a concept which has been defined and interpreted in different ways. It has different connotations with different social sciences and therefore it is necessary first specify the the specific notion of poverty: Our consideration here is the economic poverty. The economic notion of poverty, in general, refers to an economically associated circumstances involving low consumption opportunity. Therefore, poverty may be defined, from an economic point of view, as a situation in which needs are not sufficiently satisfied [Drewnowski 1976, Jhonson 1973]. What needs are to be considered, and how they are to be specified? These are the central issues which need to be addressed in deriving an operational concept of poverty based on a general economic definition.

6.2. **Identification- who are the poor?**

Much of the debate in the literature has centred around the issue of identification, how the poor are to be distinguished from the nonpoor.[1] There are two approaches to identify the poor: One approach takes 'relativist' view, the poor are identified as those deprived with the 'necessities' of life relative to the overall living standards of the society concerned. Being poor is the inability to participate in society due to lack of means. The other approach is to take an absolutist view, the poor are identified as those deprived of some essential or basic needs. Being poor is an inability to meet the essentials or basic needs of life. The first approach views poverty as a state of relative deprivation [with respect to prevailing living standards] and the second approach, as a state of absolute deprivation [with respect to the given set of needs.]

Whether, poverty is viewed as a condition of absolute deprivation or as a condition of relative deprivation, the measures being developed to identify the poor [more generally poverty lines], which distinguish the poor from the nonpoor, are based on the incomes of individuals or families. Considerable differences, however, do exist among income based poverty line definitions, currently in use or being developed. We wish to review these various poverty line definitions briefly, to set the stage for choosing an appropriate poverty line definition for the purpose of this study. In doing so we emphasize the various conceptual and theoretical aspects underlying them.

6.2.1 **The Subsistence or basic need approach**

This approach, the basis of many poverty studies, views poverty in terms of the subsistence level of living. It seeks to describe poverty objectively and those who lack necessities to sustain life are

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[1] For a concise yet excellent discussion on this debate, see Sen [1979, 1980, 1983].

poor by definition.[2] This approach has had wide acceptance, as Rein (1970) noted, "because it seems to accord with common sense and appears to be divorced from, personal values of either harshness or compassion" [p.48, 1970]. Moreover, this approach has the same connotation as the material needs, the subject of material welfare economics.

The poverty lines according to subsistence approach are defined on the basis of the cost of chosen necessities. The usual procedure is to start from the notion of minimum level of consumption of chosen needs and translate that consumption in to appropriate income levels. There are a number of conceptual problems one must address in defining poverty standards if one wishes to use this approach: What needs should be included in defining minimum or basic needs? How subsistence levels are obtained? Finally, how should one calculate the cost of a given set of needs?

There is no given set of basic needs that one can include in an operational definition of poverty. The basic needs to support life may vary from society to society and depend, among other things, on social conventions and climatic conditions. The usual procedure, however, is to consider food, clothing and housing as the essentials. This choice represents the lowest end of the hierarchical ordering of needs proposed by Marshall [1920].

Once, the components that should be included in an operational definition of poverty based on a minimum material standard of living is agreed upon, it is necessary to establish the standards representing sufficient levels. This is one of the problematic issues, because minimally sufficient levels for most of the material needs are quite difficult to quantify. Although one can establish

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[2] The first attempt to describe poverty in terms of subsistence approach goes as far back as the early 20th century. Rowntree [1901], in his study of 'Poverty in York', defined families as being in primary poverty if their total earnings are insufficient to obtain the minimum necessities for the maintenance of merely physical efficiency. By necessities he meant food, housing, and household sundries [clothing and fuel].

food requirements on a nutritional basis, such clear cut standards cannot be set up for other needs such as clothing and housing. As Luck [1972] pointed out:

> "The need for shelter varies according to locale and to social customs; it cannot be accurately measured. Fuel is essential for survival in a cold climate, but this too is a regional and variable necessity. A similar consideration applies to clothing" [Luck, (p. 15)].

A similar conclusion was reached by Orshansky [1965] who noted that 'there is no generally acceptable standard of adequacy except food' [p.5]. Because of this reason many have opted to set operational poverty standards simply by valuing minimal nutritional requirements in the form of food intake alone. The general procedure is then to design a basket of goods at a minimum cost for yielding specified caloric requirements. Such a basket of goods must reflect the food habits of the people, availability of such goods and regional variations in consumption patterns.[3]

One crucial assumption underlying minimum cost food budgets is that the goods specified will be consumed exactly the prescribed amounts. This may not be the case in practice, people may choose to purchase other goods not specified in a minimum cost food plan due to lack of knowledge or differences in taste.[4] Therefore, an alternative would be to select a basket of good that meet required nutritional levels on the basis of actual food consumption of people [using for example, data from consumer surveys] and to use associated expenditure as the basis.

When certain estimates of the cost of food based on nutritionally adequate diets are chosen, one needs to relate them to

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[3] The failure to capture these aspects would lead to a bias and meaningless standard for comparision [Townsend 1962, Rein [1974].

[4] This is acknowledged by most advocates of basic need approach. Rowantree [1901] addressed this question by introducing two types of poverty definitions: primary poverty, a situation in which means are not sufficient to buy the prescribed minimum; and the secondary poverty, a situation in which a family does have sufficient means to meet basic needs but fails to spend in the prescribed economical manner.

the total budget that will serve as the measure with which to identify the poor. Two methods have been proposed: one method is to estimate the appropriate cost of other chosen needs separately and add them to the food budget. The other is the use of Engel's coefficient and to derive the total budget; i.e., cost of food is multiplied by the inverse of the Engel coefficient to derive the poverty threshold in terms of incomes. Two variants of Engel coefficient have been used in deriving poverty lines; one is the use of the average Engel coefficient for the entire population [Orshansky, 1968], and the other is to use the Engel coefficient of the poor [Friedman, 1965]. That is, to multiply the Engel coefficient of a chosen group [usually poor] and to estimate the poverty threshold.

The problem of the Engel technique, in general, is that setting of poverty lines in such a way is crucially dependent on, and extremely sensitive to, the choice of Engel coefficient. This is particularly so in the case of first method because it uses the average Engel coefficient which may vary from survey to survey.[5] Despite this limitation, the advantage of this method is that one can establish the relationship between the poverty line and the average standards of living in a society. The problem with the second method, use of the Engel coefficient of the poor, is the circularity of definition. Since the Engel coefficient varies inversely with income, one must decide in advance what level of income the coefficient relates to. This involves circularity in reasoning, since if one wishes to use the Engel coefficient of the poor, one has to identify the poor first.

In summary, the subsistence approach views poverty as a condition when physical efficiency cannot be maintained. The usual standards used for establishing the poverty lines are nutritional requirements. Two methods had been used to derive poverty lines. Most of the criticisms of the subsistence approach [Townsend, 1962,

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[5] For example, Orshansky found values of 0.25 and 0.33 in different surveys; if the former would have been used instead of the latter, the poverty line would have increased by one third [Hagenaars, 1986].

1965, 1971, 1974, and Rein, 1971] have centered around its restriction to the preservation of physical efficiency and the consideration that poverty is a state of absolute deprivation. Townsend, [1962], one of the major critics of this approach, advocated that poverty must be viewed as a state of relative deprivation[6] and proposed to replace the concept of subsistence by relative deprivation [p. 225]. The poor, according to Townsend, are those "families ..., whose resources ... fall seriously short of the resources commanded by the average family ... in the community in which they live ..." Further, he emphasized that poverty identification measures should link to an indicator of living standards of society. The followers of this view have used two indicators to identify the poor, mean or median incomes.

6 .2.2 **Poverty lines based on the mean or median incomes.**

It has been suggested by those who argue that poverty be defined in relation to the overall living standards of society and relative economic levels, that one should use a certain percentage of mean or median] incomes as the poverty threshold [Fuchs 1965]. Mean or median income is assumed to be an indicator of the general living standards of society. Abel-Smith & Townsend [1965] in their study used 50 and 66 percent of mean incomes of certain family types as the poverty threshold. Fuchs [1967], Lancy [1980] and Rainwater [1969] use median income. Whether the mean or median income is chosen, and whatever the percentage is chosen, the poverty line defined according to this approach is relative with respect to the chosen indicator.

Such identification measures are the most easiest to derive and at the same time, are quite arbitrary. There is no rational ground to determine a particular percentage of mean or median income as the

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[6] The concept of relative deprivation, first introduced by Stouffer et al [1949], was used by Runciman [1965] to view poverty and defined poverty as a feeling of deprivation in terms of an individual's comparision of himself with another individual. Townsend, the major advocate of the relativist view, however, suggested that relative deprivation must be viewed objectively, rather than subjectively to define poverty. He emphasized that "poverty can be defined objectively and applied consistantly only in terms of the concept of relative deprivation" [1974, p.1].

poverty threshold. Thus, the resulting poverty line may not necessarily a cut-off point that separate those who are unable to participate in the general style of living in society. Perhaps, Townsend's [1979] recent work is an implicit acknowledgement of this issue.

6.2.3. **Townsend's deprivation index.**

Townsend [1974, 1979] developed a new conceptual framework to identify the poor in terms of the notion of relative deprivation. He hypothesizes that there is a point in the scale of the distribution of resources below which families find it increasingly difficult to share in the customs, activities and diets comprising the style of living generally shared or approved in a society [so they drop out or are excluded] [1974, p.36]. Income levels at that point, he suggested, can be used to define the poverty line. He tested this idea of 'more than proportional deprivation below a certain income level' on the basis of a 'deprivation index'.

Townsend used a scoring method to construct the deprivation index using a large set of indicators [sixty] reflecting the so called style of living in society. If a person or a family does not participate in any of the indicators he receives a certain deprivation score and relating these to a concept of income, an empirical poverty threshold was derived. His empirical findings, however, are not convincing, he himself finds inconclusive evidence for the existence of a poverty threshold in his study of poverty in U.K. [p.255]. Townsend's study is subject to number of limitations, both theoretical and empirical. His definition of poverty line depends on the assertion that at a certain income level deprivation increase more than proportionately. This assumption is crucial, as Hagnaars [1986] notes, 'if it does not hold, the poverty line is not defined but it is rather hard to find' [p.35]. Similarly, his choice of indicators is also subject to limitation and for this reason Hagnaars notes that, "it does not appear to be very meaningful to define a 'general style of living in society' by aspects of life that are only enjoyed by a minority" [p.36].

6.2.4 Percentile Definitions.

An another approach based on the relativist view to define poverty is income inequality. It does not provide any objective norm to identify the poor but regards poverty subjectively as the inequality between the poorest groups and rest of the community. Poverty is considered to be found in the lower percentiles of the income scale. The poor are those in the lower end of the income scale. The rationale of viewing poverty in terms of inequality presented by Miller and Roby (1970) in the following way:

> "casting the issues of poverty in terms of stratification leads to regarding poverty as an issue of inequality. In this approach we move away from efforts to measure poverty lines with pseudo scientific accuracy. Instead, we look at the nature and size of differences between the bottom 20 or 10 per cent and the rest of the society. Our concern becomes one of narrowing the differences between those at the bottom and the better-off in each stratification dimension" [p.143].

The thesis that the concept of poverty is one of inequality has some plausibility. Even the poverty line to be used for identifying the poor has to be drawn with respect to contemporary standards in the community in question, so that "poverty may look very like inequality between the poorest groups and the rest of the community" [Thurow 1975, pp. 46-7]. However, on empirical grounds, even as a conceptual basis for identifying the poor in a society, inequality approach has little significance. This is because, a high degree of income inequality may not necessarily imply that people in the lower income brackets are in poverty. Further, as Szal [1977] noted, "a very unequal distribution of income may include no poor .... whereas a very equal distribution may include nothing but poor" [p.1]. Moreover, viewing the poor as those in the lower 20 or 40 per cent in the income scale would imply that unless, there is a perfect equality in the distribution of incomes, poverty will always remain unchanged within a society.

The implicit assumption underlying the definitions of poverty based on inequality approach is that poverty is a condition that depends on the ranking of one's position in overall income distribution. The poor so identified are fixed by definition, e.g.

lower 20 or 40 percent of the population; the resulting poverty line is completely relative.

6.2.5. Other poverty line definitions.

In addition to the major poverty line definitions discussed above, there are two other methods to define poverty lines; the food ratio method, and the subjective definitions based on special surveys. The food ratio method proposed by Watts [1967] and applied and discussed by Love & Oja [1975], Rosenthal [1969], Deaton & Muellbauer [1980], Grootaerts [1981], and Van Praag, Spit & Van de Stadt [1982], is closely related to the subsistence approach. One distinction, however, is that this approach is not based on any notion of minimal requirement of food. It uses actual food expenditure patterns to determine the poverty threshold. A certain food/income ratio is chosen as the poverty threshold. Families with food/income ratio higher than the chosen food/income ratio are considered to be poor and the families with food/income ratio lower than the chosen food/income ratio are considered to be nonpoor.

Finally, the poverty lines based on special surveys attempt to define poverty on the basis of the perception people have of their own situation. This approach may be considered as a direct application of Runcimann's concept of relative deprivation. The method use in obtaining the perception of poverty is direct questioning which involves asking people to give the minimum income necessary to meet ends [Kilpatrick, (1973) and Rainwater, (1974)]. A second question is to ask people to give the minimum income necessary to maintain their own life-style [see for example, Goedhart et.al (1977)]. The poverty line is then defined on the basis of the answers given by the respondents. For example, the poverty threshold for a representative family is obtained by averaging the minimum incomes reported by the respondents as necessary to get alone [Hagnaars, 1986].

One advantage of this approach is that the a priori notion of poverty does not involve defining and identifying the poor. Further, the concept of poverty and the resulting poverty line is

purely empirical. However, note that, "minimum income" is undefined and can be any amount and depends on the way individuals or families consider what and how much it should be. Moreover, the minimum income necessary to sustain their life-style could vary between two families with similar structure [for example, two families with same number of members and similar age and sex structure], when their actual incomes are varied. Therefore, the aggregate incomes obtained on the basis of minimum incomes which serve as the poverty line [even for a particular type of families] will be a value judgement. The purely subjective nature of this approach itself leads to less empirical significance, at least, in a society where poverty is a visible and obvious fact rather than a perception.

6.2.6 Summary and evaluation.

In summary, we have reviewed, briefly, various approaches to defining poverty and the associated poverty identification measures. The subsistence approach views poverty as a state of absolute deprivation, being poor is a lack of some basic needs. The approaches based on the concept of relative deprivation view poverty as a state of relative deprivation, being poor is having less than others in the society. According to the third approach, the definitions based on special surveys, being poor is merely a feeling that one does not have enough to get along. In the first category, poverty lines are defined on the basis of required expenditure to meet chosen needs. In the second category, poverty lines are defined on the basis of mean or median income of the society, food/income ratio, income shares of certain percentiles and Townsend's deprivation index is found. In the last category, poverty lines are obtained aggregating the minimum incomes that people think is necessary to make ends meet given their circumtences.[7]

Despite differences of the emphasis, all poverty line definitions, in a broad sense, contain one common element. That is,

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[7] One may question the need for defining a particular income level [by aggregating the incomes of those who felt themselves in poverty] to identify the poor according to this approach because one can simply count the number of poor as those who felt thmeselves as poor.

explicitly or implicitly, they are defined in relation to the living standards of the society concerned. This is explicit in the poverty identification measures suggested under the relativist view and implicit in the poverty line definitions suggested in the absolutist view. Even if one derive poverty lines on the basis of food requirements alone, what is acceptable as nutritionally adequate depends on the nature of the society and the social conventions [Sen, 1979]. Thus, there remains an essential link between the poverty line defined on the basis of subsistence approach and contemporary living standards.

A difference, however, remains between approaches, namely the way in which the formulation of the relationship between the prevailing living standards of the society. The poverty lines defined on the basis of the relativist view imply a proportional relationship between the poverty line and the living standards of the society. The poverty lines based on the mean or median incomes of the society, certain percentiles of the distribution are examples. The resulting poverty identification measure is fixed by definition and insensitive to the changes in the living standards of the society.[8]

The poverty lines defined on the basis of the absolutist view vary implicitly with changing living standards. They can be linked to overall living standards in a direct or fixed manner. Moreover, they are flexible because they can be defined to take into account changing living standards of the society concerned. For example, when the overall standard of living in a society is improving, more and more needs become basic. Therefore one can either include more needs as basic or one can raise the the minimum requirements already defined to capture the changing living standards of the society.

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[8] An exception is the Townsend's poverty line. Although, this is derived proportional to the overall living standards of the society concerned, it is not necessarily a fixed one.

The relationship between the overall living standards and the poverty line specified in the third approach is undefined; it is not clear whether a poverty line defined on the basis of individuals perception of poverty has a direct relationship with overall living standards. Implicit, however, is that people view their own situation in relation to the prevailing living standards [Hagnaars 1986].

Finally, the relative merits of each poverty line definition or identification measure can be evaluated on the basis of their appropriateness in identifying the poor in the context of the properties of an 'ideal' poverty identification measure. The ideal poverty identification measure, according to Rosenthal 1969], should reflect a single, definable, quantifiable characteristics that all poor families [or individuals] and only poor families possess. Similarly, all poverty measures must ultimately relate to the ability to consume [Rosenthal, 1969, p.336].

All poverty identification measures discussed above may be said to satisfy the latter requirement, the ability to consume, implicitly or explicitly.[9] However, it appears that none of the poverty line definitions except those based on an absolutist view reflect quantifiable and definable characteristics that all poor possess. [This is because, they are not based on an objective norm to identify the poor]. The failure to capture this desirable property which enables one to identify the poor unambiguously renders the relativist approach to identifying poor less practicable. Moreover, as Sen noted [1979, p11];

> "there is an irreducible core of absolute deprivation in our idea of poverty which translates reports of starvation, malnutrition and visible hardships in to a diagnosis of poverty without having to ascertain first the relative picture".

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[9] However, poverty identification measures such as, those based on mean or median incomes and certain percentiles of the income distribution are not reflective of the degree to which individuals or groups falling within these limits face the same limitation on consumption opportunity.

Having noted the relative merits of different approaches to identifying the poor and associated poverty identification measures, now it is possible to choose an appropriate approach that can be used in the present study. Which approach one should use in defining and identifying the poor is a matter one should decide on the basis of, among other things, relative merits of different approaches and the particular society under consideration and prevailing living standards. In addition, the chosen poverty identification measure itself must have an impact on the selection of appropriate policies for dealing with the issues of poverty. In this context, the inequality approach, does not view poverty objectively and the associated identification measure does not reflect definable and identifiable characteristics of the poor in a society. Poverty alleviation under this approach is achievable if and only if there is a perfect equality in the distribution of incomes. The poverty identification approaches, such as those based on the mean or median incomes of a society have the similar deficiency while the food ratio method is based on an observed empirical relationship between income and consumption, the choice of a poverty threshold according to this approach is arbitrary and the ambiguity of poverty definition remains.Among other poverty line definitions, Townsend's approach and subjective definitions need to be derived on the basis of specially designed surveys and is beyond the scope of this study. Therefore, the obvious choice is the subsistence or basic need approach.

The subsistence approach is appropriate for the present study in many respects. It views poverty objectively, the resulting poverty identification measure possesses definable and quantifiable characteristics of the poor, and essentially relates to the ability to consume. Abide all of these, this is perhaps the most appropriate approach to view poverty in a developing country as poverty in this part of the world is not merely a subjective feeling or a value judgement but a visible fact that one can hardly disagree to. Furthermore, it captures most obvious and painful aspects of the hardships of the people in any nation; malnutrition, starvation and under-nourishment. We will discuss our the method of identifying

the poor in details in the next chapter where we study the poverty in Sri Lanka over the period 1963-1982.

6.3 Measurement of poverty.

Once a poverty line is defined and relevant poverty standards are estimated, a final choice should be made about an appropriate index for measuring the extent of poverty. There are a number of poverty indices one to choose; from traditional head count ratio and poverty gap to numerous poverty indices based on an axiomatic approach. The simplest of all and most widely used [see for example, Rowntree 1901, Orshansky 1965, 1966, Ojha 1970, Dandarkar & Rath, 1971, Lal 1976, Chenery et. al 1974, Smith & Townsend, 1965 and many others] index is the head count ratio [H] which expresses the proportion of the total population that happens to fall below the specified poverty line. The head count ratio [H] is defined as;

$$H = q / n \; ; \qquad [6.1]$$

where q is the number of poor and n is the total population. The poverty gap ratio [I] is defined as the average income gap of the poor, divided by the poverty line;

$$I = (z - v) / z \; ; \qquad [6.2]$$

where z is the poverty line and v is the average income gap of the poor. Both of these indices have recognized limitations [see for details, Sen 1974, 1976, 1980; Anand 1977; Kakwani 1977, 1980 and 1986]. The H concerns only the incidence of poverty and it ignores the extent of the income shortfall of those who lie below the poverty line. The I, on the other hand ignores the number or proportion of poor people below the poverty line. Moreover, both of these indices are insensitive to the transfer of incomes and the distribution of incomes among the poor.

Sen [1974, 1976] proposed a measure of poverty that avoids the drawbacks of traditional measures H and I, by combining these two familiar indices with a third element, income inequality among the

poor. It is defined as the weighted sum of the income shortfalls of people who are judged to be poor and is derived as follows;Ordering incomes [y] of the individuals or families nondecending order yields;

$$y_1 \leq y_2 \leq y_3 \leq y_4 \cdots\cdots \leq y_n$$

Given poverty line z, by definition,

$$y_q \leq z \text{ while } y_{q+1} > z$$

The proportion of the population defined as being in poverty is then [q/n], and the poverty gap, I, is;

$$\sum_{i=1}^{q} g_i$$

where $g_i = (z - y_i)$ is the income gap of person i. It is also true that,

$$I = \sum_{i=1}^{q} [z - y_i] = q[z - v]$$

where v is the mean income of the poor. Thus the average poverty gap is [z - v]; the proportionate average income shortfall from the poverty line is [z - v]/z and the normalized value of the Sen index is;

$$P' = [q/n][z - v]/z \qquad [6.3]$$

Given the general index [P'], two axioms then suffice to derive the index, the first specifies the income weighting scheme and second stipulates the normalization procedure [Sen 1976]. Sen chooses the rank order weighting scheme, in which the weight on the income gap of the poor person is simply his or her rank in the income ordering below the poverty line [Axiom R (Ranked Relative deprivation)]. The normalization axiom [Axiom A (normalized Absolute deprivation)] requires that when all the poor have the same income, the index takes the value equal to the proportion of people poverty multiplied by the

proportionate average shortfall of their income from the poverty line. If these two axioms are accepted, then the following measure of poverty can be derived axiomatically [Sen 1976;

$$P_s = H[I+(1-I)G], \qquad [6.4]$$

where P_s is the poverty index and G is the Gini coefficient of the income distribution of the poor, H and I are as defined earlier. The index lies between unity and zero. It takes value zero when everyone's income is above the poverty line and the value of unity when everyone in the population is below poverty line and has zero income. The index is sensitive to three factors; relative number of poor, the poverty gap and the inequality of incomes among poor, all of which are essential indicators of aggregate poverty [Kakwani, 1986]. When there is no inequality of incomes among the poor, G = 0 and P_s reduces to the product of HI, the two indicators of absolute deprivation; viz, the proportion of people who are deprived [H] and the proportionate average deprivation of those who are deprived [I] [Sen, 1979, p. 298].

The index P can be modified to capture different perceptions of poverty [see for example, Blackorby & Donaldson, 1978, Kakwani, 1980] and to derive certain policy oriented measures. Anand [1977], has derived two variants of index P yielding policy oriented poverty measures. The first, P_a^1 is derived by modifying the normalization used by Sen, e.g, by taking the per capita gap not as a percentage of the poverty level income z but as a percentage of the mean income of the community [m]. Thus the resulting index differs from P_s by a multiplicative constant reflecting normalization for unit of national or overall mean income rather than the poverty line income z:

$$P_a^1 = P[z/m] \qquad [6.5]$$

The obvious implication of this variant is that, the value of P_a^1 simply denotes the percentage of total or national income that would have to be devoted to the alleviation of poverty. Alternatively, it

may be interpreted as the fraction of national income required to close the poverty gap.

The second policy oriented measure, P_a^2, derived by Anand is based on the concept of "redistribution potential" devised by Fishlow on the basis of the concept of poverty gap.[10] Instead of expressing the income required to close the poverty gap as in P_a^1, P_a^2 expresses the gap as a fraction of the incomes of the non-poor:

$$P_a^2 = P\frac{\pi}{\mu - \frac{q}{n}v} \qquad [6.6]$$

The resulting measure is an indicator of the ability of the non poor to alleviate poverty by sacrificing their incomes.

A generalization of Sen's poverty measure was proposed by Kakwani [1980], by weighting each income gap by rank order of the power γ, where γ is some positive number that may be chosen according to the importance one attaches to the lower end of the income scale. The resulting parametric family of poverty measures can be written as;

$$P_k = \frac{q}{nz\phi k(q)} \Sigma\ (z - y_i)\ (q + 1 - i)^{\gamma} \qquad [6.7]$$

When $\gamma = 1$, $P_k = P_s$ and when $k = 0$, $P_k = P'$.
A slightly different generalization and interpretation of Sen index was proposed by Blackorby & Donaldson [1980] and derived a class of ethical indices of poverty. Their ethical indices are based on the notion of "representative incomes", defined as inequality adjusted per capita incomes. They showed that Sen's index can be seen as the product of H and I and 'Atkinson-Kholm' equally distributed equivalent incomes of the poor when evaluation is done on Gini social evaluation

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[10] In addition to "redistribution potential", Fishlow derived three other policy oriented measures on the basis of the concept of poverty gap. They are respectively; the marginal taxation rate to alleviating poverty, Reallocation of government expenditure potential and the percentage of government expenditure necessary to alleviate poverty [Fishlow, 1973].

function.[11] Thus to obtain alternative poverty measures, one can use alternative inequality measures. A class of such measures proposed by Black can be written as;

$$P_{BD} = H\ [I + (1 - I)R_p \qquad [6.8]$$

where R_p is a relative inequality measure.
In similar grounds, they proposed a class of absolute poverty measures;

$$P^a_{BD} = q[y;z]\ [z - v + A_p] \qquad [6.9]$$

where, A_p is an absolute measure of inequality.
The major advantage of B & D approach to measure poverty is that it allows various inequality measures to be incorporated explicitly into measures of poverty.

Takayama [1979] has proposed an alternative approach to derive poverty measures introducing the notion of "censored distribution'. This is obtained by truncating income from above by the poverty line. The poverty measure is then obtained by applying Gini measure to the censored distribution.

$$P_T = H\ [\ (1 - @)I + @G_w \qquad [6.10]$$

where, @ is the income ratios of the poor [@ = Q v/υ].
This approach may be considered as a translation of Gini inequality measure to one of poverty [Sen 1979]. Among other contributions: Clark, Hemming and Ulph [1981] derived two poverty indices; one based on a generalized version of Sen's index and the other, by combining Takayama [1979] and Blackorby & Donaldson [1980] approaches. They

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[11] This follows immediately from weighting procedure used in Sen index. Note that the weighted income gap is calculated by taking the difference not between the poverty line and the mean income of the poor, but between poverty line and equally diatributed equivalant incomes of the poor [i.e., (z - v(1 - G). See for details, Anand [1977] and Foster [1984].

provide a generalization of Sen index as the product of head count ratio, the poverty gap ratio and one plus the Gini index of the distribution of poverty gaps rather than incomes;

$$P_s' = HI[1 + G^*]$$

where, G^* is the Gini index of distribution of poverty gaps..

Given this interpretation, it is clear that one can obtain alternative poverty measure by simply applying alternative inequality measures to the vector of poverty gaps and substituting for G^*.

Clarck et al use Atkinson's measure of inequality to measure the inequality in the distribution of poverty gaps. The resulting poverty measure may be written as;

$$P_C^* = HI[1 + B_g^{\alpha}] \qquad [6.11]$$

where B_g^{α} is the atkinson measure of inequality in poverty gaps defined as equally distributed equivalent poverty gaps. Their second measure of poverty is based on the modified income gap ratio using the notion of "representative income" as in the case of Blackorby & Donaldson [1981]. But the representative income of the poor, as defined in Clarck et al., is based on the censored distribution of Takayama [1979].

Let y^* be the censored distribution associated with given y and poverty line z, and denote the mean of y^* by $\bar{y}^*$. Then applying Atkinson's measure of inequality to the censored distribution, the following measure is obtained;

$$P_C^2 = \{z - \bar{y}^*(1 - A^{\alpha}(y^*))\} / z \qquad [6.12]$$

where $A^{\alpha}(y^*)$ is the Atkinson measure of inequality as applied to censored distribution.

Among other contributions, Foster, Green & Thorbecke [1984] proposed a class of decomposable poverty indices that vary with the "poverty aversion" parameter. Their measure is analogous to Sen's measure and can be defined as weighted sum of individual poverty gaps, where the weights are simply the gaps themselves. In general form their poverty measure can be written as;

$$P_{FGT} = 1/n \; \Sigma_{i\chi T} \; (g_i / z)^{\alpha-1} \qquad [6.13]$$

where $\alpha > 1$. When α takes on value 1, the head count ratio H is obtained. When $\alpha = 2$, P_f becomes HI. Much of their attention have focused on the poverty measure obtained when $\alpha = 3$. This measure relates to the squired coefficient of variation, another measure of income inequality;

$$P^3_{FGT} = H[I^2 + (1 - I)^2 \; C_p^2] \qquad [6.14]$$

where, $C_p^2 = \Sigma \; (\bar{y}_p - y_i)^2 / \; (q\bar{y}_p^2)$ is the squired coefficient of variation of incomes among poor. One of the most attractive properties of this class of measures is that they are additively decomposable. Note that none of the other poverty measures, except head count ratio, is additively decomposable.

In summary we have briefly reviewed major characteristics of different measures of poverty proposed in the recent literature following the pioneering work by Sen. All of these poverty measures, despite the different emphasis used in constructing them, contain one common element. They attempt to incorporate the idea of deprivation, the central theme of the poverty concept. The difference emphasis, on the other hand, to incorporate this idea into a single index is reflective of the wide variance of the views held by different groups. Takayama [1979] for example, concerns the way in which relative deprivation enter into the Sen's index. In particular, he considers having the poor compare their poverty gaps with those of other poor individuals as an inadiquate representation of relative deprivation. Takayama argues that relative deprivation is more a reflection of the depression felt by individuals who compare their incomes with those of

the rest of the society. Kakwani, on the other hand, emphasizes the need of giving more weight to the deprivation suffered by those below poverty line. Blakorby & Donaldson and Clarck et al. emphasize the need of constructing poverty measures using explicit social welfare concepts.

Our motivation for this review is to set the stage for choosing an appropriate poverty index for the purpose of proposed study. Which of these should be used in analysing poverty is a difficult choice to make. This is because different measures emphasizes different aspects of the poverty, which are all acceptable. Thus the final choice should be made on the basis of purpose for which such measures are sought. If the focus is on the general poverty of the nation and not merely the predicament of people below poverty line, then head count ratio would be appropriate. On the other hand, the focus is on the relative position of the poor there is a good reason to choose any of the measure cited above except Takayama. Further if the focus is on the evaluation of burden of poverty, variants suggested by Anand would be appropriate. Moreover if the focus is on the profile of the poor in a society in which the total population divided into sub-groups according to specified characteristics [e.g., occupation, geographical location, race] decomposable poverty measures are the most appropriate. On the other hand, if one is interested in comparing sub-group poverty levels with another, then decomposability is inessential.

The purpose of the proposed study is to evaluate the extent and changes in the poverty among different subgroups of the population between sub-periods. For this purpose, the most appropriate measure is the head count ratio. Further, available empirical studies indicate [see Anand, 1977 and Ahluwalia, 1978] that Sen's measure of poverty is an ideal one to use in inter-temporal analysis of poverty. Therefore, we also wish to use Sen's index as an alternative measure of general poverty. Finally, there should be little objection to choose only one measure, namely Sen index, in analysing general poverty because the ranking of poverty obtained

using different measures, except H and I do not differ significantly.[12]

In summary, in this chapter we have discussed two basic requirements in studying poverty. First we reviewed various approaches to define poverty and the associated poverty standards used in the literature. Second, a brief review of available poverty measures were presented. The motivation for this review was to set the stage for justifying our framework for studying poverty and to choose appropriate measures. We choose to use the subsistence approach for identifying the poor, and indices such as Sen and conventional measures- the Head count ratio and Poverty gap for measuring poverty.

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[12] See for example Clark et al. [1981]. One of the aim of their work was to see whether way in which poverty was measured really matters. They estimated poverty indices suggested by sen, Takayama and two measures proposed by them including H and I. Their study revealed that, a significant difference could be obseved only between H and I.

CHAPTER SEVEN

POVERTY IN SRI LANKA, 1963-1982

Introduction

In the preceding chapter various approaches to identify the poor and associated poverty line definitions were discussed and we decided to employ the subsistence approach in defining and identifying the poor. This chapter analyses the extent and intensity of economic poverty and changes over the 1963-82 period.

The basic unit of analysis employed in this study is a representative individual.[1] A poor person is defined as someone whose income is below the chosen poverty threshold income, which is itself defined on the basis of nutritional requirements. The analysis is carried out by dis-aggregating total population into three socio-economic groups:[2] urban, rural and estate. Separate poverty lines are defined for each group based on a nutritionally adequate food budget.

The method employed in this study to estimate food budgets differs from the traditional method which uses an externally defined minimum cost food plan- i.e., defining a certain basket of goods which meet specified nutritional requirements at a minimum cost-. Instead, food budgets are estimated on the basis of actual food consumption of the individuals in different sub-groups of the

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[1] The choice of an individual as the basic unit of analysis is made for analytical convenience. It is perhaps more appropriate to use a family or a household as the unit of anlysis, because it is the family in a society which is usually identified as poor rather than an individual. However, as the composition and the age structure of families vary, it is quite difficult to obtain a standared or a representative family unit necessary for inter-temporal analysis. It is possible to standardise a family unit with members in different age groups using "equivalent scales". However, there remains the issue of the weighting of families of different size [see chapter 2 for details].

[2] The terms 'sector' and 'socio-economic region' are used interchangebly throught this chapter.

population. We begin by estimating the nutritional values of food consumed by different sub-groups of the population in different income ranges. Then, by matching observed calorie intake with a given calorie norm an appropriate reference group is chosen. Finally, the food budget is estimated on the basis of the actual food expenditure of the chosen reference group. This serves as the basis for defining the poverty threshold.

Two variants of poverty lines are defined. One takes the absolutist view and the poverty line is defined on the basis of selected basic needs. In addition to food, four other needs are considered as basic; housing, clothing, fuel and transportation. The other takes the relativist view. The nutritionally adequate diet is also the basis for this poverty line, but no particular set of non-food needs are specified. Instead, following Orshansky [1965, 1968], Mushgrove [1985] and others, the poverty line is derived using the Engel coefficient. These methods are explained in detail in the following section, where we also review the relative merits of each poverty line definition and their apparent limitations. Section two presents the numerical estimates of incidence and the intensity of poverty among sub-groups of the population and the nation as a whole. Three summary measures of poverty; the head count ratio- which reflects the extent or incidence of poverty-, the income gap ratio and and Sen's poverty measure- which reflects the intensity of poverty- are estimated. The third section attempts to interprete patterns and changes of poverty and a final section summarizes major findings.

Both income and consumption data necessary for this exercise are derived from the Consumer Finance surveys of 1963, 1973, 1979 and 1982. These surveys provide consumption data per spending unit classified by income of the spending units as well as on a per capita basis. They include among other things, physical quantities of different food items consumed by individuals [with the exception of 1963], average expenditure on such items and expenditure on other consumer goods and services inclusive of consumer durables. All

these data have been classified under three major socio-economic sectors/regions- urban, rural and estate.

7.1. Derivation of poverty lines.

7.1.1. Estimation of nutritionally adequate food budget.

The first step in the derivation of nutritionally adequate food budgets is to define nutritional norms for representative individuals in each of the three sub groups of the population. These norms are obtained for each group separately, by weighting the recommended age-specific caloric norms[3] by the corresponding population shares. The caloric norms so derived, therefore, can vary from one group to another and between two points in time, and depend on the age composition of the different sub-groups of the population. The estimated calorie norms for each group are presented in the Column.6 of the Table. 7.1, a detailed presentation of which is given in the Appendix-B, Table. B.1.

The second step is to estimate the actual calorie intake by individuals [in different income ranges][4] on the basis of per capita physical food consumption data derived from CFSs.[5] This is done by

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[3] Here we use the caloric norms recommended for specified age groups by the Medical Research institute of Sri lanka and approved by the World Health Organization.

[4] All the consumption data refer to spending units. The spending units are classified according to their income levels. The 1963 and 1973 surveys specify nine income ranges, from Rs. 50.00 per two months to over 3000. In the 1979 and 82 surveys, the reference period is one month and food consumption data are available according to eleven income groups, ranging from Rs. 100 per month to over 3000 per month.

[5] No physical quantities of food consumption data, except major food items such as rice, flour and sugar, are available for 1963. However, the 1963 survey povides per capita expenditure on different food items by income groups and sectors. Using these data and an appropriate price series, per capita consumption of different food items was estimated. The base price series used was the Colombo [urban] retail prices for 1963 published by the Dept. of Census and Statistics [Statistical Abstract of Ceylon 1963]. These prices were adgusted for regional price variations [rural and estate] using price relatives derived from the Socio-Economic Survey of 1969/70.
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using nutrition conversion tables provided by the Medical Research Institute of Sri Lanka.[6] These estimates are reported in the Table A.2-12 in the appendix for each sub group of the population at each point in time, 1963, 73, 79 and 82.

Having estimated the per capita calorie consumption of the individuals in different income ranges, it is then possible to derive a reference group for each sub group, by matching the actual calorie consumption and the specified calorie norm. The consumption expenditure of the chosen reference group is then used as the basis for estimating food budgets for each sub group of the population.

The major criteria adopted in choosing a reference group were the nutritional adequacy and associated costs. We select a particular group of individuals [in a given income/expenditure range] if their actual calorie consumption is close to the specified calorie norm, and their expenditure on food is the lowest. In addition, another major consideration in choosing a particular reference group was its representativeness.

The chosen reference group for each sub group of the population based on above criterion is reported in Table. 7.1 [columns 1-3]. For example, for the urban sector in 1963, the chosen reference group with the lowest per capita expenditure and highest calorie consumption represented 29.3 percent of the total urban population. In terms of

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namely condiments as the per capita expenditure for this category was given in aggregates. This ommision however, may not be expected to create significant bias in our estimates as they are supplimentary low calorie yielding food items [for example, the total caloric values of condiments in 1973, 79 and 82 accounted for only less than 5 percent of the total calorie consumption in each sector, cf Tables B5-13 Appendix -B]. The following items were excluded in estimating calorie consumption in each year. They are, alcoholic beverages, meals consumed away from home and confectionaries.

[6] These data provide respectively, the nutritional content of almost all the food items usually available in Sri lanka, the unit by which they are sold, their gram equivalent, the edible portion, and the nutritional content per 100 grams of edible portion.

the spending units to which these individuals belonged, this group represented 28.9 percent of the total. Their income range was Rs. 100-200 per month. In the case of the rural sector, the chosen group of individuals represented 24.8 percent of the total rural population and in terms of spending units, 27.2 percent. The income range of the corresponding spending units was Rs. 50-100 per month. The chosen reference group in the estate sector represented 50.5 percent of the total estate population and in terms of spending units, 52.7 percent. The corresponding income range was Rs.100-200.

Table 7.1

Estimation of Nutritionally adequate Food Budgets

Sector/ Year	Income Group of Reference Groups, Rs. Per Month	Reference group As a Percentage of Total Spending Units	Reference group As a Percentage of Total Persons	Actual Per cap. Food Cost	Actual Per cap. Calorie Intake	Calorie Norms [Per Day]	Per Head Adequacy of Cal.	Unit Cal. Price	Estimated Cost of Food
	1	2	3	4	5	6	7	8	9
1963									
Urban	[100-200]	28.9	29.3	18.94	1934	2212	87%	0.32	21.29
Rural	[50-100]	27.2	24.8	14.53	1915	2143	89%	0.26	16.74
Estate	[100-200	52.7	50.3	25.81	2740	2181	126%	0.31	20.77
1973									
Urban	[101-200]	18.1	13.2	24.93	1712	2169	78%	0.49	31.96
Rural	[101-200]	29.3	23.9	23.67	1785	2189	82%	0.44	29.03
Estate	[101-200]	31.1	22.9	32.38	2296	2212	104%	0.47	31.20
1979									
Urban	[400-600	19.0	18.5	75.46	1623	2203	74%	1.55	102.42
Rural	[400-600	23.4	22.5	72.73	1775	2205	81%	1.37	90.34
Estate	[400-600	34.3	31.6	102.61	2432	2196	111%	1.41	92.65
1982									
Urban	801-100]	10.5	9.6	142.80	1647	2224	75%	2.89	192.82
Rural	601-800]	11.2	8.6	112.93	1620	2204	74%	2.32	153.64
Estate	801-1000	21.4	20.8	165.78	2389	2192	109%	2.31	152.10

For 1973 and 1979, the chosen reference groups were in the income ranges of Rs.100-200 and Rs400-600 respectively for each group. For 1982, the reference groups for urban and estate sectors were in the income range of Rs.800-1000, and for the rural sector, Rs.400-600.

The actual calorie consumption of the chosen reference groups did not provide an exact match with given calorie norms: In particular, actual calorie consumption of urban and rural sectors fell below the respective norms and in the estate sector it exceeded the norm. Per capita adequacy of calorie consumed by the chosen reference groups in the urban sector for example, varied from 74-87 percent [see column. 7 of the Table 7.1] and in the estate sector from 104 -126 percent. Thus, in order to obtain exact cost necessary to purchase nutritionally adequate diet, the following method was used.

First, the unit price of calories was estimated by dividing the actual food expenditure of the reference group with their actual calorie intake. The unit calorie price was then multiplied by the specified calorie norm and the total food cost necessary to meet required calories was obtained. In this manner, the nutritionally adequate food budgets were estimated for each sub-group and at each point in time. These estimates are reported in columns 4-8 of Table 7.1.

An evaluation of sectoral food budgets

Some significant differences are evident in the food budgets among the sub groups of the population: In general, the cost required to obtain a nutritionally adequate diet was highest per person in the urban sector and the lowest in the rural sector with the exception of 1982. These differences can be attributed to the differences in the consumption patterns, food habits and the prices facing individuals in different sectors of the economy.[7]

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[7] It should be noted that the cost requried to obtain a nutritionally adequate diet is also influenced by the age composition of the respective groups. However, as evident from Table B.1 in Appendix-B, differences in the age composition of the population in different sub groups are insignificant.

Some evidence for variations in the consumption patterns and food habits among sub-groups implied in the sectoral food budgets can be observed from the additional data given in Table. 7.2, which summarizes the distribution of food expenditure by major categories of food items.

Table 7.2
Proportional shares of food expenditure by major food items and sectors

Major Food Items/year	Urban				Rural				Estate			
	63	73	79	82	63	73	79	82	63	73	79	82
1. Starchy Food												
Rice	.13	.20	.20	.22	.21	.29	.29	.30	.19	.27	.24	.27
Wheat/Bread	.07	.08	.11	.10	.06	.07	.08	.07	.14	.16	.19	.21
Other*	.06	.04	.04	.04	.08	.12	.06	.06	.10	.06	.05	.05
Sub Total	.26	.32	.35	.36	.35	.48	.43	.43	.43	.49	.48	.53
2. Animal Products.	.29	.20	.21	.21	.18	.13	.12	.13	.21	.09	.09	.08
3. Other**	.45	.48	.44	.43	.47	.39	.45	.44	.36	.42	.43	.39
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

* Include other grains, pulses and starchy food such as yams.
** Vegetables and other food items not included in 1 & 2 above.
Source: CFSs

Table 7.2 indicates that in general, an urban person consumes a relatively large amount of animal products compared with a person in other two sectors. The proportion of expenditure devoted to this item comprised, on average, one fifth of the total food expenditure. In contrast, the proportion of expenditure devoted to this item by a person in the estate sector was about 9 percent. On the other hand, the highest cereal consumption was found in the estate sector, accounting for 35-53 percent of the total expenditure and was lowest in the urban sector. A similar pattern was evident in the rural sector, the relative proportion of the total food expenditure on cereals was relatively high, accounting for 35-48 percent. Even within the cereal category, there were differences in the consumption among sub-groups. For example, wheat flour consumption was highest in the estate sector and lowest in the rural sector. On the other

hand, much of the expenditure on wheat products in the urban sector had been devoted to bread and a relatively less proportion on wheat flour.

In addition to variations in the consumption patterns and food habits among sub-groups, the effects of regional price variations on sectoral food budgets can be explained by referring to differences in the unit calorie prices. Per capita consumption of low cost cereals, for example, was the highest in the estate sector but unit calorie prices in this sector were significantly higher than the rural sector where per capita consumption of sereals was almost identical to that in the estate sector [for details see physical quantities of food items given in the Tables B.2-13 in the Appendix-B]. This is not surprising given the fact that the rural sector is the major food producer and other two sectors are the principle buyers.

In summary, the estimated food budgets, which serve as the basis for identifying the poor, are based on the actual consumption pattern of the individuals in different socio-economic sectors of the economy. Thus, they captures both variations in the food habits of the people in different regions/sectors of the economy and the probable price variations between such regions. Moreover, as estimated food budgets are specific to a given point in time they capture both changes in the consumption patterns and prices. Having concluded the procedure of estimation of food budgets which serve as the basis for defining poverty lines, we now consider the derivation of poverty lines under two criteria, absolute and relative.

7.1.2. Derivation of an absolute poverty line according to basic needs approach.

For the purpose of this study, Absolute poverty is defined as a condition where the flow of spendable resources available to an individual falls short of a minimum deemed necessary to meet the essentials of life. The essentials of life or basic needs considered here are: food, housing, clothing, fuel and transportation. The choice of these as the basic needs or the essentials of life is justifiable as the requirements are not only essential for healthy

survival but people in the modern world cannot be without them. Unarguably, shelter is an essential basic requirement, whatever the society under consideration; clothing is essential for survival in the civilized world. Fuel is indispensible in the preparation of food and transportation is essential to move from place to place in order to engage in economic activities and to reach essential services.[8]

Having specified a set of basic needs necessary for healthy survival and to enjoy a minimal standard of living, the next task is to estimate the minimum cost necessary to acquire non-food needs. This is a difficult and problematic issue, as there is no generally accepted basis from which to derive either minimum or sufficient levels for any of the chosen non-food needs. Thus the cost necessary to acquire these needs needs to be obtained under certain assumed consumption pattern of the people. The criterion used here to obtain the cost of non-food needs was the use of actual expenditure on these items borne by the individuals. The underlying assumption was that a person who is capable of meeting an adequate diet, at least marginally, is capable of meeting other basic needs.

For housing we used the actual rent [or imputed value] paid by the individuals in the reference group which we used to derive the food budget. A similar procedure was used to obtain expenditure on the other needs, clothing,[9] fuel and light. With respect to transportation, actual cost on public transportation [bus and train fare] was used. While there should be little objection to use of actual expenditure borne by the individuals in the lower income range as a reasonable approximation to required minimum cost, it can be argued that, the resulting poverty line is very low. Further it is

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[8] Two other needs that may be considered as basic are health care and education. However, we do not include these in our specification, as both of these are provided by the government and accessible wothout incurring significant costs.

[9] Clothing expenditure refers to cost on men's and women's clothing. We made some adjustments to the 1973 data because the actual cost on these items borne by the chosen reference groups was lower than the 1963 expenditure. The adgustments were made using 1963 expenditure levels and consumer price index for clothing.

arguable that the poverty line is not necessarily based on the average consumption patterns, as the cost of needs are based on the consumption pattern of the individuals in the lower lower income range.

Table. 7.3.
The estimated cost of basic needs [Rs. per month per head].

	Poverty Line P1			Poverty Line P2		
	Urban	Rural	Estate	Urban	Rural	Estate
1963						
Food	21.29	16.74	20.77	26.97	18.70	22.00
Housing	3.19	1.65	1.37	7.11	1.82	1.36
Clothing	3.14	2.70	4.40	5.21	2.70	4.86
Fuel & light	1.85	1.36	1.40	2.43	2.55	1.49
Transport	.16	.15	.17	.33	.17	.18
Total	**29.63**	**22.60**	**28.11**	**42.05**	**25.94**	**29.96**
1973						
Food	31.96	29.03	31.20	39.62	33.39	31.97
Housing	3.53	2.40	1.89	6.71	3.47	2.17
Clothing	4.94	4.25	6.93	8.20	4.25	7.65
Fuel & light	2.10	2.15	2.70	2.85	2.32	2.48
Transport	.95	.75	.67	1.86	1.25	.88
Total	**43.48**	**38.58**	**43.39**	**59.25**	**43.02**	**45.15**
1979						
Food	102.42	90.34	92.65	108.20	93.87	94.84
Housing	6.93	5.12	3.45	20.71	7.07	3.52
Clothing	7.37	8.16	14.53	19.94	14.18	18.27
Fuel & light	5.86	5.85	7.87	7.71	6.60	7.61
Transport	3.48	3.19	2.45	4.94	3.88	2.64
Total	**126.06**	**106.81**	**120.95**	**161.50**	**125.60**	**126.88**
1982						
Food	192.82	153.64	152.10	209.90	167.08	162.62
Housing	11.84	8.40	5.06	46.02	12.25	5.33
Clothing	12.23	9.70	20.79	26.25	16.14	25.76
Fuel & light	13.82	13.77	17.55	19.16	15.28	17.92
Transport	6.17	5.24	3.20	10.90	7.65	4.43
Total	**236.88**	**190.75**	**198.70**	**312.23**	**218.40**	**216.06**

Whether one should define absolute poverty lines on the basis of average consumption pattern of the individuals or on the basis of a minimum that is deemed necessary for survival, is a question with no definitive answer. As a precaution, however, we also define a second basic need poverty line based on overall average consumption patterns of the sub-groups. For example, the food budget is estimated on the basis of overall per capita food consumption and the

cost of other needs are calculated using average overall per capita expenditures. The numerical estimates of poverty thresholds based on the chosen reference group, termed P1, and one based on the average consumption pattern of each sub-group, termed P2, are reported in Table. 7.3.

One important feature evident from the two different poverty thresholds is that, except in the case of the urban sector, the difference between the total cost required to obtain a given set of basic needs is negligible. This is not surprising, given the fact that the majority of the population in the rural and estate sectors belongs to low income groups. In contrast, the urban sector represents the richest persons of the entire economy whose consumption is very high and therefore, the overall consumption pattern of this sector is affected by the high consumption of the rich.

While there was little difference between the total expenditure required to obtain a given set of basic needs defined according to two different consumption patterns within groups, [except in the urban sector], some noteworthy differences were evident in the expenditure on non-food items between sub-groups of the population. The expenditure on clothing for example, both with respect to the minimum cost [based on the reference group] and overall average cost, is significantly high in the estate sector. The average cost on clothing in this sector is almost identical to the urban sector which represents the most affluent group in the community. This reflects one of the most important factors affecting the cost of living among sub-groups, namely regional variations in climatic conditions. The majority of the estate population is located in the central hill country, where the climate is unusually cold, thus requiring heavy clothing [and therefore relatively high expenditure on them] in comparison with the other sectors. Relatively high expenditure per head on fuel in this sector is also due to the climatic conditions.With respect to housing, the lowest per capita expenditure was found in the estate sector and the highest in the urban sector. This is due to the relatively high rental values in the urban sector

in general, and the poor housing conditions prevailing in the estate sector.

In summary, we define two poverty lines based on the basic need approach, P1 and P2, each representing two acceptable poverty levels. P1 can be considered as the lowest end of the acceptable basic needs poverty line, and P2 as the upper end of the poverty scale. P1 is purely an absolute poverty line. But P2, though absolute in the sense that it refers to a specified set of needs, has an element of relativity implied in it. If one believes that absolute poverty is a condition of inability of people to meet basic needs with minimum cost, P1 may be the desirable poverty line. On the other hand, even essentials of life need to be defined relative to the overall living standards of the society, P2 may be thus considered as desirable.

However, from an empirical point of view, the difference between the two poverty lines is negligible. Although P1 is based on the consumption pattern among lower income groups, it represents the consumption pattern of the majority of the population [this is true even in the case of urban sector]. Therefore, we prefer P1 in analysing absolute poverty and P2 is used only as a supplementary poverty line in verifying the changes in the incidence of poverty between different points in time. To view poverty in relative terms, we define another poverty line which explicitly views poverty relative to the overall living standards of the society.

7.1.3. Derivation of relative poverty line on the basis of overall living standards of the society.

Literature offers two approaches to define relative poverty lines; one is to use mean or median incomes as the poverty threshold, without estimating or considering needs as such, and the other is to estimate poverty thresholds by combining food needs with other needs based on the overall living standards of the community. The link between minimal food requirements and overall living standards is established through a chosen indicator of overall living standards of the entire society.

The latter approach of constructing relative poverty lines may be seen as a combination of two poverty lines defined by Sen [1979], namely "nutritional poverty lines" and "cultural poverty lines". The first corresponds to the level of income at which the consumption level of an individual is nutritionally adequate, and the second identifies the levels of income adequate for meeting necessities defined in terms of the overall living standards of that society. The usual method used in constructing such a poverty line is to use Engel relation. According to this method [proposed and applied by Orshanski [1965] and followed by many researchers], the poverty line is constructed by multiplying the food budget with the inverse of the Engel coefficient of the society.

An alternative proposed by Kakwani [1986] was to combine minimum cost food budget with mean or median incomes of the society. Such a poverty line may be written as:

$$Z(\beta) = z_0 + \beta(m - z_0),$$

where z_0 is the nutritional poverty line income and m denotes mean or median income of the society, an indicator of overall living standards of the society. β lies in the range $0 \leq \beta \leq 1$, which implies that the poverty line can be neither lower than minimum subsistence $[z_0]$ nor higher than the mean or median income of the society.

Both of these approaches address the issue of linking minimum food requirements with other needs in an identical manner. However, from an empirical point of view, Kakwani's approach is difficult one to use, the major difficulty being obtaining numerical values of β which depends on the society's value judgement about the minimum standard of living which all its members must enjoy. Orshanski's approach, on the other hand, is simple, and is based on an established empirical relationship between food consumption and the overall living standards of a society. Moreover, Engel coefficients can be readily obtained from the survey data. Thus this is the approach chosen in this study.

Table 7.4.
Estimates of relative poverty lines

	Overall Engel Ratio.	Poverty threshold of sub-groups Rs. per month. Urban	Rural	Estate
1963	.56	38.00	29.80	37.08
1973	.55	58.10	52.78	56.72
1979	.55	186.22	164.25	168.45
1982	.55	350.58	279.34	276.54

Note : All Engel ratios were obtained from CFS of 1963-82.

The numerical estimates of relative poverty lines for each group are presented in Table 7.4. These were estimated by multiplying sector specific minimum cost food budgets by the inverse of the overall Engel coefficients.[10] Note that the poverty lines so derived for each group are relative to the prevailing living standards of the entire society at a given point in time.

In summary, we have derived three poverty lines. The first two, P1 and P2, were based on the basic needs and may said to be absolute poverty lines which take into account some specified needs defined as necessary for healthy survival. These poverty lines were derived by estimating the cost of the chosen needs separately, based on the consumption pattern of the lower income groups and average consumption patterns of each sub group. The third poverty line was derived by incorporating minimal nutritional requirements with other needs with respect to prevailing living standards of the entire society. Thus, the poverty line P3 may be considered as reflecting socially acceptable living standards that all the members of society should enjoy.

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[10] It is possible to estimate relative poverty lines for each group using sector specific Engel coefficients. Such poverty lines are useful in analysing relative poverty of a particular group given relative living standards specific to that group. Our consideration here is the living standards common to all.

Having defined poverty lines, the next step is to estimate poverty measures. The poor are, by definition, those individuals whose actual income fall short of a specified poverty threshold. Thus to identify the poor, incomes of the individuals [or income per head] need to be used. No readily usable per capita income data are available from the surveys and necessary data therefore need to be derived using income data with respect to spending units. These data are available in grouped form and the following two stage procedure was used to derive per capita incomes with respect to each sub-group of the population.

First, per capita income distributions were derived by dividing total income of spending units by the respective number of individuals. Then the Lorenz curve for each group was estimated by fitting the Kakwani-Podder function. Second, estimated parameters of Lorenz curve were used to estimate the actual proportion of individuals below specified poverty threshold incomes. The numerical estimates of poverty under different poverty line definitions are reported and discussed in the following section.

7.2. The incidence of poverty: An Overview

Table 7.5 presents estimates of overall incidence of poverty based on three poverty line definitions: P1, P2 and P3.

Table 7.5
The incidence of overall poverty under alternative poverty lines

	P1	P2	P3
1963	0.46760	0.5636	0.6256
1973	0.18460	0.3760	0.5978
1979	0.30340	0.4056	0.6414
1982	0.33620	0.4632	0.6312

The proportion in absolute poverty, estimated on the basis of poverty line P1, accounted for 0.47 or 47 percent of the total population in 1963, 18 percent in 73, 30 and 34 percent in '79 and 82

respectively. According to poverty line P2, the percentage in poverty was 56, 38, 41 and 46 percent in respective years from 1963-82. The percentage in relative poverty, estimated on the basis of poverty line P3, was respectively, 63, 60, in 1963 and 73, and 64,63 in 1979 and 82.

The most significant feature evident from the estimates based on different poverty line definitions is the marked changes in the extent or incidence of absolute poverty over the 1963-82 period. The percentage of the population in absolute poverty, measured by P1, indicated 29 percentage point decline between 1963-73, and according to poverty line P2, 19 percentage points. Between 1973 and 79, the percentage of the total population in absolute poverty rose significantly and and continued to rise in the latter sub period, 1979 to 82. According to P1, the percentage in absolute poverty rose by 18 percentage points between 1973-79, and by 3 percentage points between 1979 and 82. The incidence of poverty measured by P2, indicated a rise of 3 and 6 percentage points between 73-79 and 79-82 respectively. As one would expect, the estimates of incidence of absolute poverty vary with each poverty line. What is clear, however, is the direction of change, which is uniform across poverty lines.

A similar though less marked change in the incidence of relative poverty was evident. The proportion of relative poor declined by 3 percentage points between 1963 and 73, and then rose by 4 percentage points between 73-79. Between 1979-82, however, a marginal decline in the proportion of relative poor was evident, i.e. by one percentage point.

It is important to examine whether the changes in the incidence of poverty was due merely to a shift of a large number of poor from a position slightly above [below] the chosen poverty line to a position slightly below [above] it. This is necessary not only in terms of identifying actual changes in the extent of poverty [therefore living standards of the people in general], but also to examine changes in

the incidence of poverty arising from changing economic circumstances among the poor.

One way of addressing this issue is to examine the sensitivity of changes in the incidence of poverty at different points in chosen poverty scales. For example, one can measure the proportion of poor at different points on a poverty line between two points in time. Then, comparing the corresponding proportions, at each specified point of the poverty scale, it is possible to determine and identify the actual shift that may have occurred between two points in time.[11] Consider for example, five fixed points of a poverty line [each representing the number of individuals with incomes below certain percentages of poverty threshold income], three below poverty line, 50, 75 and 90 percent, and two above poverty line, 110 and 125 percent. If changes in the incidence of poverty between two points in time is due to a marginal shift of the population, then we should observe a significant change of the number of poor in the range 90-110 percent of a given poverty line. On the other hand, if changes in the incidence of poverty is due largely to improved income position of the poor at the lower end, we should observe a significant drop of number of poor, for example, those below 50 or 75 percent of the poverty scale. We experimented with this procedure using poverty lines P1 and P3, and results are presented in figures 7.1 to 7.3 and figures 7.4 to 7.6 respectively.

Figure 7.1 presents the cumulative percentage of poor falling below different points in the poverty scale, P1, for 1963 and 73. The first point of the curve for 1963 for example, represents the cumulative percent of population below 50 percent of the poverty line P1. Alternatively, this represents the cumulative proportion of the population whose actual incomes were 50 percent below the poverty threshold income defined by poverty line P1. In 1963, over 10 percent of the population fell below 50 percent and 22 percent of the cumulative population under 75 percent of the poverty line, P1.

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[11] A similar method has been proposed by Atkinson but in slightly a different context. For details, see Atkinson [1987].

Figure 7.1 Changes in the Incidence of Absolute Poverty 1963 and 73

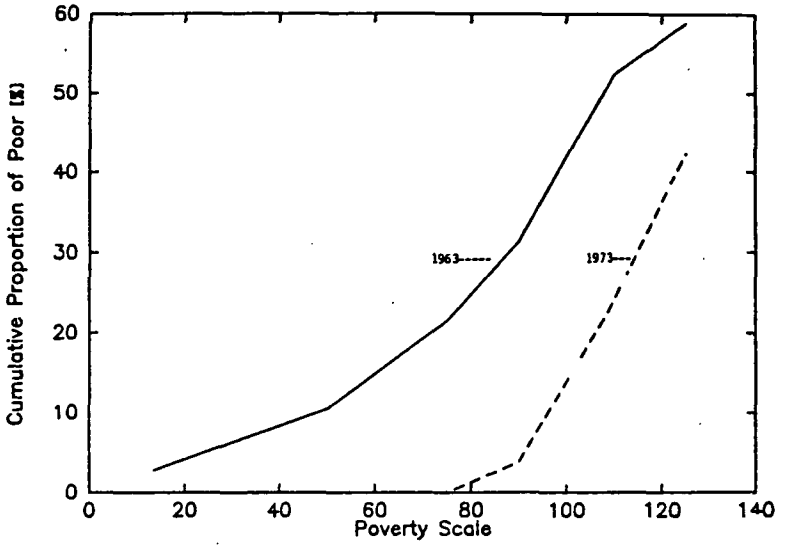


Figure 7.2 Changes in the Incidence of Absolute Poverty 1973 and 79

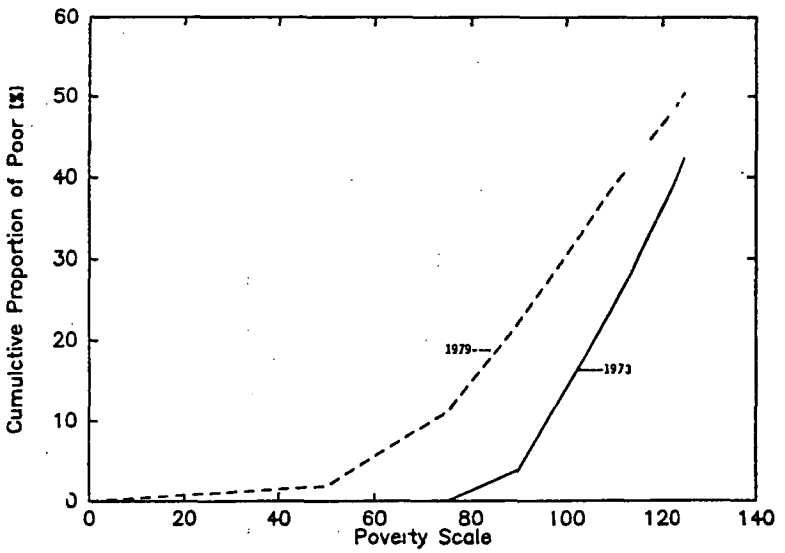
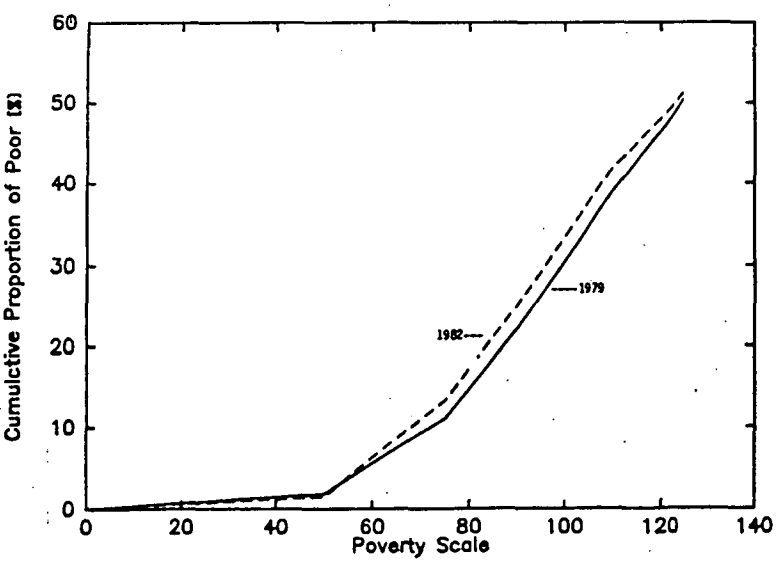


Figure 7.3 Changes in the Incidence of Absolute Poverty 1979 and 82



In 1973, the cumulative proportion of population with incomes below 75 percent of the poverty threshold was zero. The poor in 1973 could be identified only in the range, 75-90 percent below poverty line accounting for mere 4 percent of the total population. This indicates that the reduction in the incidence of absolute poverty between 1963 and 73 is, unambiguously, due to a large shift of the population from low income groups to upper income groups implying a significant improvement of the living standards of the lower income groups.

Figure 7.2, representing 1973 and 79, indicates the opposite trend. A clear downward shift of population from the nonpoor position to the poor position is evident. The proportion of the population below poverty line at respective levels of 50, 75 and 90 percent were 1.8, 12 and 23 percent.

The change in the incidence of poverty between 1979 and 1982 is, however, less pronounced. There is a parallel shift of the proportion of poor at different levels of the poverty line, indicating a uniform rise of the proportion of poor at each corresponding point in the poverty scale. This implies that the rise of the incidence of poverty in 1982 compared with 1979 has been due mainly to shift of the population from a slightly better position to a slightly poorer position. No significant change in the living standards of the low income groups is evident, as between 63-73 and 73-79, except that due to a slight decline in the living standards of the entire population in general.

A similar pattern of change in the incidence of poverty can be observed from figures 7.4-6, where proportion of cumulative population is graphed at specified points in the poverty scale defined by poverty line, P3. However, except between 1963-73, significant changes in the incidence of poverty among the low income groups is not evident. Between 1963 and 73, as evident from the figure 7.4, the proportion of the population below 50 percent of the poverty threshold disappears, indicating a significant reduction in the number of relative poor at the lowest end of the poverty scale.

Figure 7.4 Changes in the Incidence of Relative Poverty 1963 and 73

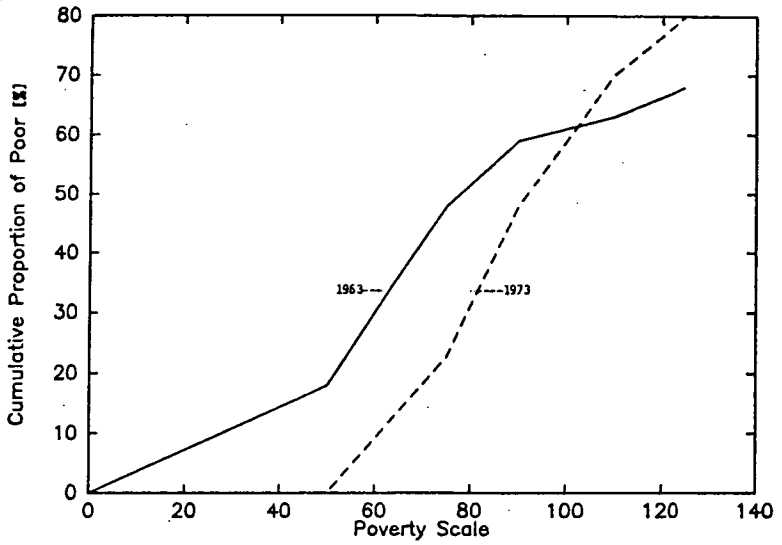


Figure 7.5 Changes in the Incidence of Relative Poverty 1973 and 79

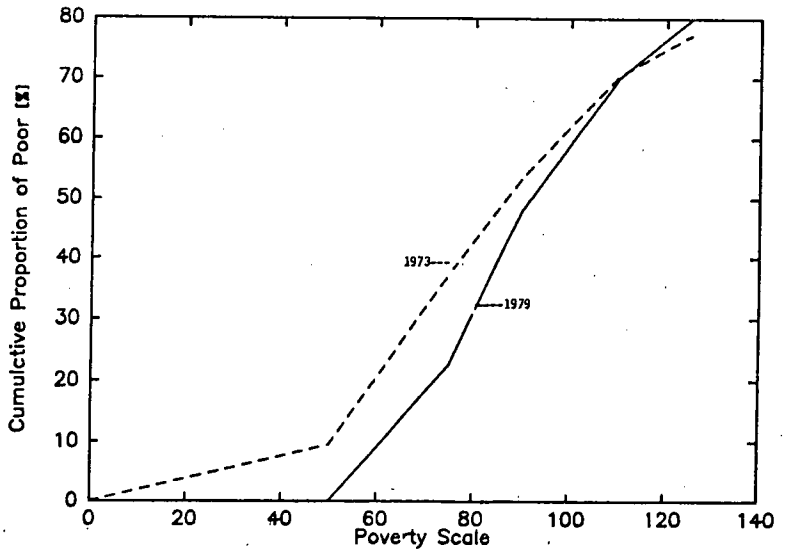
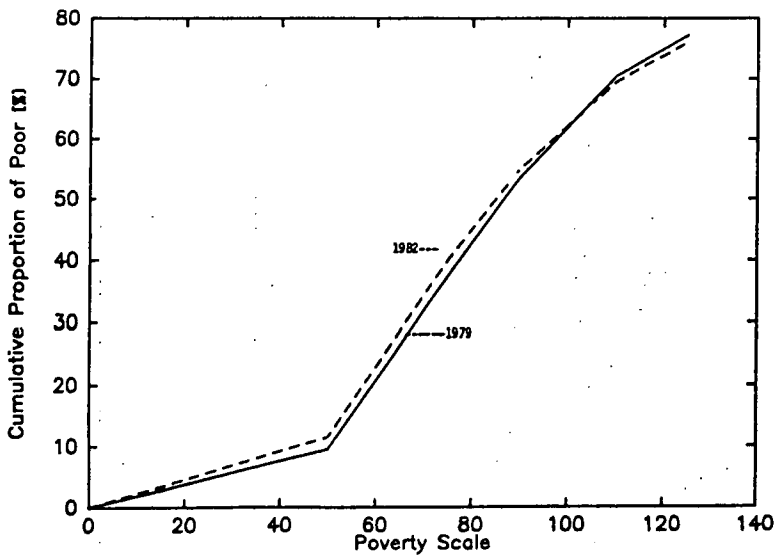


Figure 7.6 Changes in the Incidence of Relative Poverty 1979 and 82



The cumulative proportion of the population below 90 percent of the poverty threshold which amounted to 58 percent in 1963 reduced to 48 percent in 1973. This proportion rose to 54 percent in 1973 and by 1982, to 55 percent [c.f. figures 7.5 and 6]. The change in the incidence of relative poverty post 73 period, as evident from these data, has been due to a shift of the population from a slightly better position to a slightly poorer position.

It is clear from the foregoing analysis that there has been a significant change in the incidence of poverty over the 1963-82 period. Both the incidence of absolute and relative poverty in the economy declined markedly between 1963 and 73, and rose significantly between 73 and 79. No one in the population was in abject poverty in 1973, defined as those fell below 75 percent of the absolute poverty line-P1, compared with 1963, where this proportion was 22 percent of the total population. The marginally poor, defined as those falling within 75 to 90 percent below the poverty line, reduced to a negligible proportion, i.e., 4 percent. Thus, it is reasonable to conclude that absolute poverty in the economy almost disappeared between 1963 and 73. Between 73 and 79, the opposite occurred, both abject and marginally poor rose and this increased further between 79-82.

7.2.1 The intensity of poverty

The discussion so far has been concerned with the incidence of poverty measured by the head count ratio. Now we turn to examine the severity or intensity of poverty among the poor, and its changes. Two alternative measures of poverty, customary poverty gap ratio [PG] and Sen's measure of poverty [S] are used. These, together with the income inequality among poor measured by Gini coefficient are reported in Table 7.6. First consider the PG.

The poverty gap ratio [PG], one of the most widely used measure of intensity or severity of poverty, is the absolute income shortfall of the poor normalized at poverty level income. The estimated normalized poverty gap ratios with respect to two poverty lines P1 and P3 are given in the first and second columns of the table 7.6.

Table 7.6.
The intensity of poverty measured under poverty lines P1 & P3.

	Average Poverty Gap[PG]		Sen's Index of Poverty[S]		Income Inequality Among Poor[G^P]	
	P1	P3	P1	P3	P1	P3
1963	0.3239	0.5972	0.2161	0.3364	0.1934	0.2167
1973	0.1011	0.2174	0.0239	0.1660	0.0343	0.0771
1979	0.2101	0.3042	0.0889	0.2561	0.0974	0.1392
1982	0.2217	0.3312	0.1029	0.2706	0.1079	0.1474

PG for the absolute poor in 1963 was 0.32 implying that absolute total shortfall of incomes among absolute poor accounted for 32 percent of the poverty threshold income. In 1973, the value of PG was .08 and in 1979 and 82, the corresponding values were respectively, 0.20 and 0.23. The poverty gaps of the relative poor were 0.40, 0.22, 0.30 and 0.33 in respective years from 1963-82.

The PG among both absolute and relative poor declined significantly between 1963-73 and rose after 73. These indicate that, that changes in the poverty observed during the 1963-82 period have also accompanied by similar changes in the intensity of poverty among the poor.

The poverty measured by PG, however, provides only a partial view of the intensity of poverty. This is because it is insensitive to variations in the income shortfall among the poor or more specifically, the income inequality among the poor. Moreover, it is insensitive to the number of poor. All three aspects of poverty, the incidence, intensity and income inequality among the poor are incorporated in the Sen's measure of poverty and the numerical estimates of which are reported in the third and fourth columns of the Table 7.6.

The general pattern of change in the severity of poverty implied in the Sen's measure is consistent with other two measures, the head-count ratio and PG. The index S declined from 0.20 in 1963 to 0.01

in 1973, indicating an existence of almost zero degree of poverty in 1973. It rose to 0.08 and to 0.10 in from 1973-82. Relative poverty measured by Sen's index indicated the same pattern: between 1963 and 73, the value of Sen index declined [from 0.32 to 0.16], and rose between 1973-79 [to 0.27 and 0.29 in 1979 and 82.

In summary, we have analysed the incidence and severity of poverty under two poverty line definitions, absolute and relative, and using three measures of poverty: the head count ratio, the average poverty gap ratio and Sen's measure of poverty. Each of these three measures reflects different aspects of poverty. The first refers to the extent or incidence of poverty and second and third reflect the severity or intensity of poverty. Both incidence and intensity of absolute poverty declined between 1963-73 and rose after 73. Similar but less pronounced changes were evident with respect to relative poverty and in particular between 1979-82, where the incidence of poverty indicated a marginal decline. However, measures PG and Sen index indicated a rise in relative poverty in this period.

Having summarized the patterns and changes of incidence and severity of poverty among the population as a whole, now we turn our attention to examine poverty among different sub-groups of the population- urban, rural and estate.

7.3 Absolute poverty among sub-groups of the population.

Table 7.6 presents measures of absolute poverty for each subgroup based on the poverty line, P1. Col. 1 presents the head count ratio [Q], Col.. 2 normalized poverty gap of the poor [PG], Col.. 3 income inequality among poor [G^P] and coln. 4 the degree of poverty measured by Sen index [S].

The incidence of absolute poverty varied significantly among sub groups of the population, as much as 60 percent of the estate population was in absolute poverty in 1963, and nearly 50 percent of the total rural population was in absolute poverty. The percentage in absolute poverty in the urban sector however, was relatively small, accounting for 32 percent of the total urban population. In 1973

and 79, the highest incidence of absolute poverty was found in the rural sector, accounting for 20 and 34 percent of the total rural population, followed by estate and urban sectors. In 1982, the highest incidence of absolute poverty was found in the estate sector, accounting for 40 percent of the estate population and the lowest incidence was found in the urban sector accounting for 22 percent of the total urban population. The proportion of the urban population in absolute poverty, in general, was the lowest.

Table 7.6.
Estimates of absolute poverty among socio-economic groups

	Proportion of Poor Q	%	Average Poverty Gap PG	Income Inequality among Poor G^p	Sen's Index of Poverty S
1963.					
Urban	0.32000	10.95	0.254	0.11440	0.10863
Rural	0.48000	74.94	0.341	0.21460	0.23184
Estate	0.60000	14.11	0.335	0.16840	0.26825
1973					
Urban	0.14000	15.27	0.123	0.04400	0.01426
Rural	0.20000	79.90	0.099	0.03280	0.01522
Estate	0.16000	4.82	0.045	0.02610	0.00423
1979					
Urban	0.22000	16.68	0.193	0.08770	0.05814
Rural	0.34000	76.20	0.225	0.10750	0.10492
Estate	0.24000	7.12	0.089	0.04530	0.03066
1982					
Urban	0.22000	10.41	0.230	0.10150	0.06240
Rural	0.36000	81.07	0.240	0.11650	0.11824
Estate	0.40000	8.52	0.096	0.03430	0.05066

As the relative proportion of the population in absolute poverty varied among sub-groups, the intensity of or severity of poverty also varied. This was reflected in the Sen's measure of poverty reported in the column. 5 of the Table 7.6. Both in 1963 and 73, the ranking of degree of poverty among sub-groups was consistent with the ranking of incidence of poverty. The highest and lowest degree of poverty, for example, was found in estate and urban sectors in 1963, and between rural and estate sectors in 1973.

Throughout the post 73 period, however, the highest degree of poverty was found among the rural poor and the lowest among the estate poor. The relatively high degree of poverty evident among rural poor was also associated with relatively high poverty gaps and income inequality among the poor. Except in 1973, both average poverty gap and the degree of income inequality among rural poor was the highest and lowest among the estate poor. These results indicate that the rural poor, in general, are worse off than their counterparts in urban and estate sectors. From welfare point of view, relatively high poverty gap would indicate that the average welfare enjoyed by the rural poor was much lower than the average welfare enjoyed by the poor in other two groups.

It is informative to comment on the contribution of each sub-group of the population to the overall incidence of absolute poverty. These contributions, in percentage terms, are given in the Col.2 of the Table 7.6. The rural poor accounted for 75-81 percent of the total poor in the economy over the 1963-82 period. The contribution of the urban poor was 10-17 percent and the contribution of the estate sector, in overall, was the lowest, varying from 5-14 percent. The most important feature evident from these data is that, poverty in Sri Lanka is overwhelmingly a rural phenomenon.

The changes in the incidence and severity of poverty among sub-groups between 1963-82 are consistent with overall changes. Between 1963-73, both the degree of poverty and the incidence of poverty among all groups declined markedly, the highest rate of decline is evident in the estate sector, the index S declined by 68 percent and the percentage in poverty declined by 54 percentage points. Both the degree of poverty and the incidence of poverty rose among all groups between 1973-79, the highest increase was evident in the rural sector. Between 79-82, the number of poor in the rural and estate sectors rose, the highest increase was evident in the estate sector whislt it remained unchanged in the urban sector. The severity of poverty, on the other hand increased among all groups.

7.3.1 Relative poverty among sub-groups of the population.

Table 7.7 presents the measures of relative poverty among sub groups. Throughout the period under consideration, the highest incidence of relative poverty is seen in the estate sector followed by the rural sector and the lowest has been in the urban sector. The percentage in relative poverty in the estate sector accounted for 68 to 84 of the total estate population and in the rural sector 58-68 percent. The percentage in relative poverty in the urban sector, on the other hand, was 44-54 percent.

Table 7.7
Measures of relative poverty among sub-groups.

	Prop. of Poor	Average Poverty Gap	Income Inequality among Poor		Sen's Index of Poverty.	Income Per Capita	Overall Income Inequ.
	Q	%	PG	G^P	S	Rs.	G
1963.							
Urban	.460	11.71	0.3313	0.1887	0.20128	64.02	0.4476
Rural	.640	74.30	0.4200	0.2258	0.35261	30.98	0.3844
Estate	.800	13.99	0.4163	0.1975	0.42527	31.13	0.1949
1973							
Urban	.440	8.36	0.2021	0.0828	0.11798	75.58	0.2811
Rural	.580	72.32	0.2275	0.0789	0.17887	54.17	0.2105
Estate	.740	13.00	0.1818	0.0533	0.16678	55.19	0.1686
1979							
Urban	.540	19.58	0.2915	0.1268	0.20591	237.57	0.3740
Rural	.660	70.77	0.3236	0.1515	0.28069	172.72	0.3349
Estate	.760	9.65	0.1989	0.0781	0.19875	152.62	0.1632
1982							
Urban	.520	15.65	0.3092	0.1335	0.20874	487.00	0.4230
Rural	.640	75.03	0.3457	0.1569	0.28695	299.48	0.3552
Estate	.840	9.32	0.2519	0.0850	0.26504	229.95	0.1437

Although the relative proportion of the estate population in relative poverty was the highest, the severity of poverty was the lowest among estate poor. Both high average poverty gaps and high value of Sen index [except in 1963] indicate that severity of poverty in the rural sector has been the highest among all sectors.

The changes in the incidence of relative poverty among sub-groups, as in the case of absolute poverty followed the same pattern between 1963-73 and 73-79, first declined and then rose. However, between 1979-82, a small reduction in the incidence of relative poverty was evident in the urban and rural sectors but it continued to increase in the estate sector.

7.4 An Interpretation

The data we assembled and analysed in the preceding sections with respect to economic poverty among the Sri Lankan population indicate that there are wide variations in living standards among sub groups of the population. Two poverty lines were defined and used in analysis. The first defined as absolute referred to an income level necessary to enjoy a minimal standard of living. The second poverty line defined as relative referred to an income level necessary to meet essentials of life based on the overall living standards of the whole economy.

Under both criteria, we observed significant variations in the living standards among sub-groups. In general, the relative living standards of the estate population was the lowest among sub-groups, on average, over 75 percent of the estate population failed to meet income requirements necessary to enjoy a given standard of living. Moreover, this situation worsened over the 1963-82 period. With respect to minimal living standards, such a clear pattern, however, was not evident. It varied at different points in time, however, the relative proportion of the urban population which failed to enjoy a minimal living standard was the lowest. On the other hand, variations in the living standards among rural poor was the highest among all groups. What are the factors underlying these variation in living standards between groups and within them?

The principal factor affecting living standards of a community is their income. Thus, when level of income varies among sub-groups their living standards also could be expected to vary. In general, the mean per capita income of the urban sector was the highest [see column 6 of the Table 7.7] and both absolute and relatively poor in

this sector was also the lowest among sub-groups. Mean per capita incomes of the rural and estate sectors, on the other hand, were significantly lower than that in the urban sector and the incidence of poverty within these two sectors was also the highest.

In addition to the differences in the overall levels of incomes between sub-groups, apparent variations in the incidence of poverty also may partly be explained by referring to the overall degree of income inequality within each group. There is a tendency for overall income inequality and relative poverty to be negatively correlated. For instance, the lowest degree of overall income inequality was found in the estate sector [see column 7 of the table 7.7], and the incidence of relative poverty was also the highest in this sector. Moreover, per capita incomes of the rural and estate sectors were almost identical in 1963 and 73, but the degree of income inequality in the rural sector was significantly higher than that in the estate sector. The proportion of the population in relative poverty was relatively high in the estate sector and low in the rural sector. Furthermore, throughout the period under consideration, the highest degree of income inequality was found in the urban sector and at the same time, the lowest incidence of relative poverty was evident in this sector.

The variations in the severity of poverty among sub-groups can also be explained by referring to the overall degree of income inequality and respective income levels among sub-groups. When the degree of income inequality is high and the level of income is low, the population in the lower end of the income scale receives a relatively small proportion of the total income. Thus, the severity of poverty among a group with relatively high degree of income inequality would be higher than a group with lower income inequality, when overall incomes of two groups are in similar range. This is exactly the case evident from the variations in the severity of poverty between rural and estate sectors, where the overall levels of incomes are low.

Having noted the impact of differences in levels of incomes and degree of income inequality on the economic poverty and implied variations in living standards of the population we now turn to changes in poverty.

The economic poverty is a condition of inability to meet essentials of life due to lack of resources or more generally sufficient incomes. Thus, a change in the incidence of poverty between two points in time may be expected to be influenced by the general growth patterns of the economy. Growth of the economy over time could lead to reduction in the incidence of poverty under two circumstances; first, growth of the economy creates an increased demand for labour and thus more income generating opportunities. Second, if growth is a result of increased productivity, incomes of the entire community would rise. However, growth per se may not necessarily reduce poverty if resulting rise of incomes are unequally distributed. Moreover, in a period of rapid growth of the economy, probable price rises may inhibit any improvement of the position of low income groups, even if there is an equal division of increased incomes. Therefore, an interpretation of changes in poverty between two points in time must be viewed in the context of real income growth and associate distributional patterns.

7.4.1 Economic growth, income inequality and absolute poverty.

Table 7.8 summarizes the changes in the key variables affecting poverty, the mean incomes of low income groups, overall mean incomes, inequality of incomes and changes in the price levels. Mean income of the lowest 40 percent of the population was taken as the proxy for growth pattern of incomes among the poor, and overall mean incomes were taken as a proxy for overall income growth of the economy. The unit calorie prices were taken as a proxy for price changes between each point in time. These data are given for the economy as a whole and for each sub sector of the economy between sub-periods. Col.1 of the table 7.8 presents the percentage change in mean incomes of poor [V], col.2, Overall per capita mean income [U], Col. 3, percentage change in unit calorie prices [CP] and col.4, change in the overall income inequality measured by Gini coefficient [G].

Table 7.8.
Rate of changes in key variables affecting absolute poverty

Sector	1963-73					1973-79					1979-82				
	V	Q	U	CP	G	V	Q	U	CP	G	V	Q	U	CP	G
Urban	87	-69	18	50	-37	162	57	214	220	+33	89	-	105	88	+13
Rural	176	-71	75	73	-45	144	70	219	210	+59	64	6	73	70	+6
Esta.	174	-73	77	50	-13	170	50	177	182	-3	56	11	51	74	-12
All	154	-61	61	67	-41	153	64	219	213	+49	67	11	78	72	+8

A casual, nevertheless a strong empirical relation between income growth, income inequality and poverty is evident from above data. Between 1963 and 73, inequality of distribution of per capita incomes declines markedly [by 41%], mean incomes of the poor rose at a higher rate [154%] than both overall mean incomes [61%] and price rises [67%] implied in the change in the unit price of calories. The incidence of overall poverty declines by 19 percent. Between 1973 and 79, an opposite trend is evident: inequality of incomes rose [49%], mean incomes of the poor rose at a lower rate [153%] than both prices [213%] and overall mean incomes [219%], and the proportion of poor also rose [64%]. A similar trend is evident between 1979 and 82, inequality of incomes rose marginally [8%], mean incomes of the poor rose at a slower rate than both overall mean incomes [78%] and prices [72%], the proportion of poor also indicated a marginal rise [11%].

This relationship is further evident from the sectoral data: between 1963 and 73, inequality of incomes declined among each sub-group of the population, mean incomes of the lower income groups rose at a higher rate than the growth of overall incomes and the number of poor in each group declines. Between 1973 and 79, the opposite trend is evident, inequality of incomes in the urban and rural sectors rose, the number of poor also rose. In this instance, however, the estate sector, provides an exception. Despite the reduced income inequality [though small, i.e., by -3%] in the estate sector, the incidence of poverty rose. A similar situation is

evident between 1979-82, the inequality of incomes in the estate sector indicated a further decline [by 12%], but the incidence of poverty rose [by 11%]. This would suggest that improvement of incomes of the lower income groups [or reduced income inequality] has not effectively increased the real incomes of the estate poor. This becomes clearer when one examines the growth pattern of incomes in this sector which was lower than in the other two sectors. Further, the overall price rises were significantly higher than the growth of nominal incomes.

Between 1979-82, mean incomes of the urban poor and food prices change at an identical rate and despite increased income inequality in this sector, the proportion of poor remains unchanged. In contrast, mean incomes of the lower income groups in rural and estate sectors rise at a slower rate than the increase in the food prices and the number of poor also rises. These findings lead to the following inferences: The reduction in the absolute poverty evident in 1973 compared with 1963 is due mainly to the change in the pattern of income distribution which favoured the low income groups. The significant rise of the absolute poverty post 73 is due largely to the increased income inequality and fall of the real incomes of the lower income groups which resulted from the rapid rise in wage good prices.

Finally, it is informative to view these empirical findings in the context of general growth experience of the economy. As we have already discussed in chapter 3, the post 73 period was one in which the economy grew at a high rate and in particular since 1977, following the drastic change in the growth strategies and economic policy emphasis. The pre-77 period, on the other hand, was one in which economy grew at a slow rate and the policy emphasis was directed towards achievement of more equitable distribution of incomes and productive resources. The impact of different growth patterns and associated policies on the welfare of the lower income groups are clear. Between 63-73, economy grew at a slow rate, relative income inequality declined significantly and most importantly, absolute poverty reduced markedly. In the post 77 period, economy grew at a high rate, relative income inequality increased and these accompanied

by an absolute impoverishment among lower income groups. Thus the Sri Lankan experience of post 77 appears to be consistent with the experience of many other developing countries which experienced an absolute impoverishment during the course of rapid growth.

CHAPTER EIGHT

SUMMARY AND CONCLUSIONS

This chapter summarizes and reviews major findings of the study, relates conclusions to other studies, and draws out some general implications for theory and policy.

Summary

The study began with a brief review of the income distribution issue highlighting the evolution and current state of the subject, and related theoretical and empirical issues. The second chapter focused on conceptual and methodological issues, such as the concept of income, unit of analysis and the measurement of income inequality and data sources.

Chapter three analysed the overall pattern of income distribution and changes between sub periods. The pattern of overall distribution of personal incomes in Sri Lanka and changes are quite distinct from most of the third world countries and in particular countries at a similar stage of development. In the initial year of study, the observed pattern of income distribution in Sri Lanka was consistent with the pattern of income inequality of a country of its given level of development [per capita income level] but latter observations contrast sharply. The degree of income inequality evident in 1973 for instance, is far lower than the expected levels and is significantly higher in 1979 and 82. There is a tendency for income inequality to decline between 1963-73 and to rise over the 1973-82 period. When one views these changes in the context of particular growth levels, they are again contrary to the expectations. Thus an alternative explanation was necessary and an attempt was made to explain the observed changes by referring to development strategies and associated policy measures. The chapter concluded by asserting that changes in income inequality over the 1963-82 period was due to particular growth patterns, growth strategies and associated policy measures.

Chapter four attempted to explain the factors underlying observed patterns and changes in income inequality in detail. This was achieved by disaggregating overall income distribution by major production sectors. First, the pattern of income distribution among major production sectors, at different points in time and between them, were analysed. In general, it was found that the mean incomes of the non-agricultural sectors were significantly higher than the agricultural sector, the major economic activity of the economy. Similarly, the degree of income inequality in the agricultural sector was relatively lower than the non-agricultural sectors with the exception of small construction and transport. These differences were explained by referring to the production relations specific to each major economic activity and differences in personal attributes of individuals.

The emphasis was then switched to an evaluation of the relative significance of inequalities within and between sectors for the overall income inequality of the economy by means of decomposing overall income inequality measured by Theil's index into 'within' and 'between' components. The results revealed that the broad Service sector makes the greatest contribution to overall inequality while the major economic activity- agriculture contributed the smallest proportion. The service sector remained as the single economic sector accounting for the largest contribution to overall income inequality, though its relative significance declined over the 1963-82 period [i.e., from 82 to 42 percent]. The contribution of inequality of the agricultural sector, on the other hand, continued to increase, from about 7 percent in 1963 to about 25 percent in 82. The relative contribution of the broad manufacturing sector varied and its contribution rose over 1963-79 and then declined. These changes were explained by referring to the growth pattern of different economic sectors and changes in the production relations specific to them induced through changes in policy measures.

Chapter five provided a further disaggregation of overall income inequality and namely, by ethnic groups and socio-economic regions- urban, rural and estate. Significant differences in the division of

incomes between major racial groups, as well as socio-economic regions were found. In general, mean incomes of the community group distinguished as "Others" were the highest and lowest among the racial group Indian Tamils. The differences between mean incomes of the Sinhalese and the Sri Lankan Tamils, the two major ethnic groups were found to be small. Similarly, inequality of incomes within the ethnic group "Others" was highest and it was lowest among the In. Tamils. The degree of income inequality among the Sinhalese and SL. Tamils are almost identical. Within socio-economic regions, the urban sector has the highest mean incomes and lowest in the estate sector. The impact of racial and locational differences in incomes on the overall income inequality was studied by decomposing overall income inequality by racial groups. It was revealed that inter-racial income differences contribute only a small proportion of overall income inequality. However, a further decomposition of racial income differences in conjunction with the sector of location indicated that differences in mean incomes among ethnic groups contributed significantly to overall income inequality.

Another issue addressed in this chapter was the growth and equity relation in terms of ethnic groups. A comparison of growth of real mean incomes and changes in unemployment revealed that each group benefited from the rapid growth of economy during the post-73 period where the economy experienced relatively high economic growth. No significant improvement of the income levels or the relative economic position of the most adversely affected group- the In. Tamils was evident and their relative economic position deteriorated between 1963-73.

In chapter six the issue of poverty was addressed, and in particular the definitions of poverty, the identification of the poor and measures of poverty were reviewed. Some numerical estimates related to poverty were presented in ch. seven. Two poverty lines were defined: absolute and relative. The former specified an income required to meet essentials of life defined as food, clothing, shelter and transportation. The latter specified an income level required to enjoy a level of living based on the overall living standards of

the society. Different poverty lines were estimated for three major socio-economic regions- urban, rural and estate. The study reveals that poverty in Sri Lanka is largely a rural phenomenon, the majority of the poor living in rural areas. The incidence of absolute poverty in Sri Lank declined significantly between 1963-73 and rose between 1973-82. Such increases were more pronounced in the 1973-79 period. However, changes in the incidence of relative poverty were less pronounced.

Discussion.

Let us now review the findings of the study in the context of questions we raised in the introductory chapter. The first question was to examine the patterns of income distribution and changes between survey periods. In the light of the analysis carried out in chapters three to five, several general conclusion regarding the nature of income distribution and associated inequality can be drawn. First, there are significant differences in the size distribution of incomes between major economic sectors, socio-economic regions and major racial groups. Such differences however accounted only for small proportion of overall income inequality in the economy. Moreover, the significance of such differences declined over the 1963-82 period. The contribution of inequality of incomes between major economic sectors to the overall inequality declined from as high as 19 percent in 1963 to negligible proportion in 1982, i.e., one percent. A similar reduction is evident with respect to the income differences between major ethnic groups, the percentage contribution of inequality between ethnic groups to overall inequality declined from 12-5 percent between 1973-82.

Despite the significant decline in inequality between different sub-groups of the population, the rise in the income inequality evident between 1973-82 indicates that the apparent rise in income inequality evident in this period is due to increased income inequality within major socio-economic groups. Such changes can be interpreted differently: In the context of the growth and equity relationship for instance, the rise in the overall income inequality despite the decreased between group inequality suggests that growth

has brought equity in the distribution of incomes between groups while it worsend within groups.

The second question related to the factors underlying the prevailing distribution patterns and their changes. The factors affecting distributional patterns among individuals vary from one economic activity to another, and the structural ridigities and differences of personal attributes among individuals appear to be the principle factors. As far as overall income inequality is concerned the major economic factor suggested in the literature- the level of growth is found to be of little significance in explaining both the degree of income inequality and changes over time.

With respect to the third issue raised in the introduction, the socio-economic implications and in particular the living standards of the lower income groups, we observe that in a period where relative income inequality was falling the incidence of poverty was also falling. Similarly, in a period where relative income inequality was rising the proportion of poor was also on the rise. Thus, the reduction in income inequality was followed by improved living standards of the low income groups and the rise in inequality was accompanied by worsening living standards for them.

Some inferences of general significance about the impact of growth strategies on changes in the pattern of income distribution can be drawn from the empirical findings of the study. Each of the observations of income distributional patterns observed in Sri Lanka are located in three different policy epochs: In the initial year of the study, where the emphasis of the national development strategy was directed towards increasing growth, a high degree of income inequality was found. The switch from growth to redistribution occurs in the second epoch and relative income inequality declines. In the third epoch a redirection of emphasis from redistribution to growth follows and relative income inequality rises. This finding leads to the view that changes in income inequality of an economy are influenced by economic and political persuasions. Further the Sri Lankan economy grew at a slower rate during 1963-73 and income inequality declined

while the acceleration of the growth rate between 1973-82 is accompanied by greater income disparity. Thus it appears from this evidence that the degree of Sri Lankan income inequality and the rate of economic growth are negatively correlated lending support to the argument that the pursuit of a relatively high rate of economic growth or development is associated with greater income inequality.

The findings of this study have also some implication for theories of growth and distribution and the dual theory in particular. As the theory suggests, a rise in income inequality resulting from economic growth is accompanied by increasing income differences between major economic sectors [between agricultural and non-agricultural sectors] and vice versa. The opposite trend evident in Sri Lanka thus raises some doubts about the relevance of conventional wisdom as an explanation of the determination and changes in income inequality over time. This view is reinforced by the failure to observe a predictable relationship between level of development [measured by per capita GDP] and degree of income inequality in Sri Lanka over the 1963-82 period.

Conclusions

Relative inequality of incomes in Sri Lanka declined between 1963-73 and worsened after 1973. The changes are broad based; inequality of size distribution of personal, family [spending units] and per capita incomes declined between 1963- 73 and increased between 1973-82. A similar change in income inequality was evident among all ethnic groups and within major industrial sectors. This change in the pattern of income distribution is not merely a statistical artifact. It has been accompanied by significant changes in the living standards of the lower income groups. This inference emerges from the analysis of the incidence of absolute poverty. The percentage in absolute poverty in the economy, as well as within the three major socio-economic regions, [urban, rural and estate], declined significantly between 1963-73. Between 1973-79 and 79-82 the opposite occurred, the incidence of absolute poverty increased, with such increases most pronounced between 1973 - 79. The changes are explained by referring to the development strategy and growth

patterns of the economy. In contrast to many of the suggestions in literature, Sri Lankan experience indicates that the pattern of distribution of incomes of an economy is influenced largely by the policy measures rather than growth per se. Finally, contrary to the claims by Glewwe [1986] and Bhalla & Glewwe [1986], our results clearly indicate that the shift from redistribution to 'trickle-down' which occurred during the latter part of the 1970s has brought increased economic inequalities among the Sri Lankan population in general, and an absolute impoverishment among the lower income groups in particular. How long such a trend prevails, and the expected trickle-down eventuates, remain to be seen. The most recent data on personal income distribution in Sri Lanka covering the latter part of third epoch is currently being processed and when finalised it will make for an interesting comparison with the results of this study.

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APPENDIX - A

TABLE A.1

Income Receivers—Income Distribution by Income Group-1953

Income Group of Income Receiver (Income for 2 months)	No. of Income Receivers	2 Months		12 Months	
		Total Income	As % of Total Inc.	Total Income	As % of Total Inc.
0–25 ..	266	3,429·77	0·16	58,981·40	0·50
26–50 ..	475	18,622·77	0·90	151,677·80	1·29
51– 75 ..	568	36,562·12	1·76	278,506·40	2·37
76– 100 ..	808	71,061·18	3·42	477,110·30	4·05
101– 125 ..	772	87,517·07	4·21	552,142·80	4·69
126– 150 ..	683	94,400·77	4·54	555,881·30	4·72
151– 175 ..	526	85,764·24	4·12	519,941·60	4·42
176– 200 ..	506	95,599·25	4·60	533,571·80	4·54
201– 250 ..	662	149,551·62	7·19	815,583·83	6·93
251– 300 ..	525	144,914·29	6·97	784,457·30	6·67
301– 350 ..	407	132,819·97	6·38	739,214·90	6·28
351– 400 ..	349	132,134·67	6·35	715,581·60	6·08
401– 450 ..	208	89,328·30	4·29	504,585·30	4·29
451– 500 ..	183	85,989·66	4·13	474,941·90	4·04
501– 600 ..	237	130,234·89	6·26	676,620·08	5·75
601– 700 ..	171	111,263·70	5·35	593,737·40	5·05
701– 800 ..	99	75,362·19	3·62	393,900·90	3·35
801– 900 ..	77	65,891·69	3·17	348,926·10	2·97
901–1000 ..	59	57,473·86	2·76	325,639·30	2·77
1001–1200 ..	62	67,870·73	3·26	360,443·30	3·06
1201–1400 ..	28	36,483·00	1·75	212,182·50	1·80
1401–1600 ..	23	34,528·80	1·66	156,542·53	1·33
1601–1800 ..	14	23,595·60	1·13	109,975·40	0·94
1801–2000 ..	14	26,840·66	1·29	153,027·90	1·30
2001–2500 ..	23	51,318·63	2·47	270,351·20	2·30
2501–3000 ..	8	22,334·00	1·07	152,342·40	1·29
Over 3000 ..	28	149,649·59	7·19	849,084·00	7·22
Total ..	7,781	2,080,543·02	100·00	11,764,951·24	100·00

TABLE A.2

Income Receivers – Distribution of Total and Average Income for Two Months – 1973

Income Group of Income Receivers (Rs for 2 months)	Number of Income Receivers	Total Income for 2 months (Rs)	Average Income for 2 months (Rs)	Number of Income Receivers		Income of Income Receivers	
				As percent of Total	Cumulative percent	As percent of Total	Cumulative percent
0– 25	33	536	16·24	0·45	0·45	0·02	0·02
26– 50	98	3,982	40·63	1·34	1·79	0·12	0·14
51– 75	132	8,516	64·52	1·80	3·59	0·26	0·40
76– 100	273	24,460	89·60	3·73	7·32	0·73	1·13
101– 125	300	34,607	115·36	4·10	11·42	1·04	2·17
126– 150	397	55,721	140·36	5·42	16·84	1·67	3·84
151– 175	336	54,953	163 55	4·59	21·43	1·65	5·49
176– 200	355	66,996	188·72	4·85	26·28	2·01	7·50
201– 250	544	124,156	228·23	7·43	33·71	3·72	11·22
251– 300	608	168,966	277·90	8·30	42·01	5·07	16·29
301– 350	484	157,250	324·90	6·61	48·62	4·72	21·01
351– 400	517	194,778	376·75	7·06	55·68	5·84	26·85
401– 450	487	207,593	426·27	6·65	62·33	6·23	33·08
451– 500	402	191,866	477·28	5·49	67·82	5·76	38·84
501– 600	689	376,856	546·96	9·40	77·22	11·31	50·15
601– 700	481	311,911	648·46	6·57	83·79	9·36	59·51
701– 800	357	266,781	747·29	4·87	88·66	8·00	67·51
801– 900	223	188,995	847·51	3·04	91·70	5·67	73·18
901–1000	141	133,161	944·40	1·92	93·62	3·99	77·17
1001–1200	195	212,058	1,087·48	2·66	96·28	6·36	83·53
1201–1400	96	124,539	1,297·28	1·31	97·59	3·74	87·27
1401–1600	44	66,108	1,502·45	0·60	98·19	1·98	89·25
1601–1800	31	52,697	1,699·90	0·42	98·61	1·58	90·83
1801–2000	23	43,477	1,890·30	0·31	98·92	1·30	92·13
2001–2500	35	78,884	2,253·83	0·48	99·40	2·37	94·50
2501–3000	15	41,235	2,749·00	0·20	99·60	1·24	95·74
Over 3000	30	142,383	4,746·10	0·41	100·01	4·27	100·01
Total	7,326	3,333,465	455·02	100·01		100·01	

Income Receivers—Distribution of Total and Average Income for One Month—. 1979

Income Group of Income Receivers (Rs. for 1 Month)	Number of Income Receivers	Total Income for One Month (Rs.)	Average Income for One Month (Rs.)	Number of Income Receivers		Income of Income Receivers	
				As a Percentage of Total	Cumulative Percentage	As a Percentage of Total	Cumulative Percentage
0 - 50 ...	354	9,618	27.17	2.83	2.83	0.12	0.12
51 - 100 ...	637	49,640	77.93	5.09	7.92	0.64	0.76
101 - 150 ...	770	99,262	128.91	6.15	14.07	1.28	2.04
151 - 200 ...	951	168,808	177.51	7.59	21.66	2.19	4.23
201 - 250 ...	969	220,214	227.26	7.74	29.40	2.85	7.08
251 - 300 ...	899	249,134	277.12	7.18	36.58	3.22	10.30
301 - 350 ...	822	268,570	326.73	6.56	43.14	3.48	13.78
351 - 400 ...	748	282,377	377.51	5.97	49.11	3.66	17.44
401 - 450 ...	749	318,781	425.61	5.98	55.09	4.13	21.57
451 - 500 ...	625	296,789	474.86	4.99	60.08	3.84	25.41
501 - 600 ...	1,072	589,112	549.54	8.56	68.64	7.63	33.04
601 - 700 ...	863	559,412	648.22	6.89	75.53	7.24	40.28
701 - 800 ...	663	496,205	748.42	5.29	80.82	6.43	46.71
801 - 900 ...	449	381,834	850.41	3.59	84.41	4.94	51.65
901 - 1,000 ...	361	342,432	948.56	2.88	87.29	4.43	56.08
1,001 - 1,250 ...	533	593,687	1,113.86	4.26	91.55	7.69	63.77
1,251 - 1,500 ...	319	434,466	1,361.96	2.55	94.10	5.62	69.39
1,501 - 1,750 ...	189	304,339	1,610.26	1.51	95.61	3.94	73.33
1,751 - 2,000 ...	134	251,133	1,874.13	1.07	96.68	3.25	76.58
2,001 - 2,500 ...	138	308,116	2,234.72	1.10	97.78	3.99	80.57
2,501 - 3,000 ...	83	226,302	2,726.53	0.66	98.44	2.93	83.50
3,001 - 4,000 ...	68	233,333	3,431.37	0.54	98.98	3.02	86.52
4,001 - 5,000 ...	39	174,385	4,471.41	0.31	99.29	2.26	88 78
5,001 - 10,000 ...	65	438,381	6,744.32	0.52	99.81	5.67	94.45
Over 10,000 ...	24	429,142	17,880.92	0.19	100.00	5.55	100.00
Total ...	12,524	7,725,472	616.85	100.00	——	100.00	——

TABLE A.4

Income Receivers—Distribution of Total Income for One Month— 1982

Income Group of Income Receivers (Rs. for One Month)	No. of Income Receivers	As a % of Total No. of Income Receivers	Total Income (Rs.)	As a % of Total Income	No. of Income Receivers as a % of Total Cumulative	Income as a % of Total Cumulative
0 — 100 ..	374	3.03	21,747	0.16	3.03	0.16
101 — 200 ..	781	6.32	126,095	0.92	9.35	1.08
201 — 300 ..	1,057	8.56	274,917	2.00	17.91	3.08
301 — 400 ..	1,069	8.66	378,303	2.76	26.57	5.84
401 — 500 ..	1,055	8.54	480,028	3.50	35.11	9.34
501 — 600 ..	1,015	8.22	562,466	4.10	43.33	13.44
601 — 700 ..	929	7.53	605,469	4.42	50.86	17.86
701 — 800 ..	802	6.50	604,179	4.40	57.36	22.26
801 — 900 ..	725	5.87	616,027	4.49	63.23	26.75
901 — 1,000 ..	602	4.88	574,385	4.19	68.11	30.94
1,001 — 1,250 ..	1,138	9.22	1,269,420	9.26	77.33	40.20
1,251 — 1,500 ..	659	5.34	901,087	6.57	82.67	46.77
1,501 — 1,750 ..	502	4.07	815,352	5.95	86.74	52.72
1,751 — 2,000 ..	365	2.96	683,603	4.99	89.70	57.71
2,001 — 2,500 ..	413	3.35	919,378	6.70	93.05	64.41
2,501 — 3,000 ..	227	1.84	622,876	4.54	94.89	68.95
3,001 — 4,000 ..	244	1.98	842,112	6.14	96.87	75.09
4,001 — 5,000 ..	110	0.89	493,241	3.60	97.76	78.69
5,001 — 10,000 ..	197	1.59	1,293,488	9.43	99.35	88.12
Over 10,000 ..	80	0.65	1,628,433	11:88	100.00	100.00
Total ..	12,344	100.00	13,712,606	100.00	—	—

APPENDIX - A

Table A.5
The distribution of incomes by spending units.

Decile Groups	Relative Income shares. [%]				Mean income per decile Rs. per month [at 63 prices]				Rate of change in Mean incomes		
	1963	1973	1979	1982	1963	1973	1979	1982	63-73	73-79	79-82
1	.0150	.0279	.0212	.0218	28.90	62.25	70.13	75.33	115.40	12.64	8.12
2	.0395	.0438	.0361	.0355	76.10	97.73	119.41	129.12	28.41	22.18	8.12
3	.0400	.0560	.0465	.0435	77.07	124.95	153.82	166.32	62.13	23.09	8.12
4	.0521	.0652	.0568	.0524	100.38	145.48	187.89	203.16	44.93	29.14	8.12
5	.0627	.0745	.0659	.0635	120.80	166.24	217.99	235.71	37.60	31.13	8.12
6	.0754	.0875	.0769	.0702	145.27	195.24	254.38	275.06	34.39	30.28	8.12
7	.0900	.0991	.0857	.0869	173.41	221.13	283.49	306.54	27.52	28.20	8.12
8	.1122	.1165	.1122	.1071	216.18	259.96	371.15	401.33	20.24	42.77	8.12
9	.1554	.1492	.1403	.1452	299.42	332.92	464.11	501.34	11.19	39.40	8.12
10	.3677	.2803	.3584	.3729	708.47	625.46	1185.59	1281.96	-11.71	89.55	8.12

Table A.6
The distribution of incomes per capita.

Decile Groups	Income Shares [%]				Mean Income per Decile Rs. per month [at 63 prices]				Rate of change in Mean incomes		
	1963	1973	1979	1982	1963	1973	1979	1982	63-73	73-79	79-82
1	.0251	0.0582	0.0517	0.0381	9.10	24.36	34.49	37.42	167.49	41.59	8.47
2	.0409	0.0831	0.0549	0.0468	14.84	26.41	36.63	39.73	77.98	38.68	8.47
3	.0506	0.0721	0.0619	0.0528	18.36	30.18	41.30	44.80	64.38	36.84	8.47
4	.0601	0.0810	0.0673	0.0589	21.80	33.90	44.90	48.71	55.48	32.43	8.47
5	.0675	0.0847	0.0732	0.0661	24.49	35.45	48.84	52.98	44.76	37.75	8.47
6	.0760	0.0859	0.0806	0.0720	27.57	35.95	53.78	58.34	30.39	49.56	8.47
7	.0930	0.0890	0.0914	0.0834	33.74	37.25	60.98	66.15	10.40	63.69	8.47
8	.1148	0.1030	0.1060	0.1060	41.65	43.11	70.73	76.72	3.50	64.03	8.47
9	.1290	0.1100	0.1264	0.1370	46.81	46.04	84.34	91.49	-1.62	83.16	8.47
10	.3430	0.2520	0.2866	0.3443	124.46	105.49	191.23	207.44	-15.24	81.28	8.47

APPENDIX - B

ABBREVIATIONS
FOOD CONSUMPTION TABLES

Qty.	Quantities	CT	Coconuts
Cals.	Calories	O	Coconut/Gingerly Oil
R	Rice	MG	Magarine
F	Flour	MK	Fresh Milk
BD	Bread	MO	Milk other [Powder]
CEK	Other Grains	MB	Butter
B	Beef	MC	Cheese
M	Mutton	FPA	Pineapple
CH	Paultry	FPW	Papaw
FI	Fresh Fish	FM	Mango
FD	Dried Fish	FP	Banana
FO	Other Fish [Priserved]	FOR	Oranges
E	Eggs	SU	Sugar
PU	Dhall	SH	Honey and Juggary
PU1	Other Dhall	T	Tea
PU2	Mong Beans	CFE	Coffee
PU3	Cowpea	CO6	Limes
CO	Chillies	CO7	Coriander
CO1	Chillies [Dried]	CO8	Cummin seed
CO2	Maldive Fish	CO9	Mathe seed
CO3	Onions	CO10	Mustard
CO4	Garlic	CO11	Tumeric
CO5	Pepper	CO12	Other condiments

TABLE B.2
AVERAGE QUANTITIES OF FOOD CONSUMED AND CALORIC VALUES PER HEAD FOR TWO MONTHS - BY INCOME GROUPS
URBAN SECTOR - 1963

	Income group of spending units [Rs. per two months]															
	0-50		51-100		101-200		201-400		401-800		801-1600		1601-2000		overall	
	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.
Cereal and cereal preperations																
R	17803.38	61421.67	15985.78	55150.96	18294.13	63114.76	16949.11	58474.43	15958.52	55056.89	14113.66	48692.11	14431.74	49789.50	14586.23	50322.50
F	2303.80	8017.24	940.60	3273.31	1526.78	5313.20	1199.61	4174.66	1608.57	5597.84	1381.37	4807.18	3230.78	11243.12	1404.09	4886.25
BD	3385.27	8293.93	2335.61	5722.25	3417.08	8371.86	3962.36	9707.79	4639.42	11366.58	5452.79	13359.35	6375.23	15619.31	4512.19	11054.86
Other Grains																
K	93.15	305.53	104.79	343.73	81.50	267.34	104.79	343.73	151.65	497.43	49.13	161.15	736.69	2416.36	88.03	288.77
Starch Foods																
POT	2058.57	1996.81	2008.93	1948.66	2390.69	2318.97	2124.94	2061.19	2706.09	2624.91	2540.16	2463.96	2838.29	2753.14	2473.52	2399.31
Meat																
B	738.28	841.64	668.30	761.87	538.84	614.28	717.29	817.71	1147.67	1308.34	1557.05	1775.04	2008.42	2289.60	776.77	885.52
M	151.33	178.57	265.67	313.49	73.98	87.30	110.97	130.95	248.86	293.65	269.03	317.46	558.25	658.74	218.59	257.94
P	0.00	0.00	3.72	13.82	7.45	27.64	7.45	27.64	18.63	69.11	40.98	152.05	14.90	55.29	26.08	96.76
CH	0.00	0.00	0.00	0.00	12.17	13.27	3.04	3.31	21.31	23.22	42.62	46.45	112.64	122.78	42.62	46.45
Fish																
FI	574.92	750.27	459.90	600.17	440.37	574.69	323.04	421.58	400.08	522.11	432.38	564.26	588.76	768.34	384.10	501.26
FD	150.72	369.26	114.23	279.86	96.81	237.20	106.35	260.56	122.11	299.17	65.09	159.49	99.92	244.82	126.46	309.83
FO	0.00	0.00	0.00	0.00	0.00	0.00	31.80	59.79	40.89	76.88	22.71	42.71	99.96	187.93	37.77	71.01
Eggs	88.47	153.05	91.09	157.59	82.84	143.32	84.34	145.92	238.42	412.47	377.50	653.08	872.72	1509.80	261.29	452.03
Vegetables																
V	2722.87	707.94	2722.87	707.94	2742.75	713.11	2703.00	702.77	3438.37	893.97	4173.75	1085.17	6399.75	1663.93	3522.44	915.83
Pulses																
PU1	1087.43	3729.90	665.41	2282.36	713.97	2448.93	819.62	2811.30	892.61	3061.65	811.38	2783.06	876.42	3006.13	716.53	2457.70
PU2	459.51	1599.10	0.00	0.00	258.15	898.38	320.06	1113.83	402.71	1401.43	361.24	1257.14	433.66	1509.16	310.97	1082.20
PU3	569.41	1862.00	0.00	0.00	155.34	507.98	107.63	351.96	370.61	1211.92	502.11	1641.90	621.67	2032.88	552.37	1806.28
Nuts and Oils																
CT	6475.19	28749.87	4771.19	21184.12	4430.39	19670.96	4430.39	19670.96	5111.99	22697.27	5248.31	23302.53	7054.55	31322.23	5084.73	22576.21
O	902.05	8118.49	618.76	5568.88	566.57	5099.21	551.66	4965.02	596.39	5367.59	656.03	5904.35	887.14	7984.30	887.14	7984.30
MG	0.00	0.00	0.00	0.00	27.26	209.93	22.71	174.94	36.35	279.91	70.43	542.32	120.41	927.20	56.80	437.35
Milk and Milk Products																
MK	0.00	0.00	0.00	0.00	66.49	44.54	923.49	618.74	1846.99	1237.48	2622.73	1757.23	6952.10	4657.91	1344.61	900.89
MO	0.00	0.00	142.28	620.35	85.19	371.47	167.84	731.79	241.96	1054.97	454.39	1981.18	269.23	1173.85	173.80	757.80
MB	0.00	0.00	1.70	12.42	1.98	14.49	4.26	31.05	11.64	84.88	18.74	136.64	29.25	213.24	1.70	12.42
Fruits, Sugar and Beverages																
FP	283.49	294.83	377.99	393.11	377.99	393.11	314.99	327.59	881.99	917.27	1102.49	1146.59	2299.49	2391.47	670.00	696.80
SU	2753.66	10959.57	2399.23	9548.93	2421.95	9639.36	2649.15	10543.62	3162.62	12587.23	3535.23	14070.21	3707.90	14757.45	3026.30	12044.68
T	399.30	151.73	257.01	97.66	321.20	122.05	348.75	132.52	439.34	166.95	426.56	162.09	596.68	226.73	347.33	131.98
CFE	0.00	0.00	113.88	52.38	63.89	29.39	49.98	22.99	128.65	59.17	181.19	83.34	461.21	212.15	56.80	26.12
Total		134771.59		106751.59		118797.93		116017.18		126108.76		126265.10		156731.30		120900.00
Per day		2246		1779		1980		1934		2102		2104		2612		2015
Average expenditure per head [Rs. per two months]		45.63		39.38		39.42		37.88		50.45		57.80		86.88		50.10

TABLE B.3
AVERAGE QUANTITIES OF FOOD CONSUMED AND CALORIC VALUES PER HEAD FOR TWO MONTHS - BY INCOME GROUPS
RURAL SECTOR - 1963

	Income of spending units															
	0-50		51-100		101-200		201-400		401-800		801-1600		1601-2000		Overall	
	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.
Cereal and cereal preperations																
R	18494.07	63804.54	19102.96	65905.23	18512.25	63867.25	19030.26	65654.40	18312.31	63177.48	19430.13	67033.95	23965.05	82679.40	17230.84	59446.40
F	1231.42	4285.35	990.59	3447.25	1267.77	4411.85	1345.02	4680.68	1444.99	5028.57	1640.38	5708.53	2449.21	8523.26	1222.33	4253.72
BD	1535.87	3762.88	1599.48	3918.74	1831.23	4486.51	2208.38	5410.53	2490.11	6100.77	2944.51	7214.05	4230.46	10364.63	2176.57	5332.60
K	449.85	1475.52	597.53	1959.91	480.52	1576.13	381.12	1250.09	232.59	762.91	361.81	1186.75	2780.35	9119.57	432.53	1418.70
Starch food																
POT	1741.55	1689.31	1800.91	1746.88	1949.84	1891.34	2068.82	2006.76	2292.22	2223.45	2634.59	2555.55	3750.21	3637.71	2098.77	2035.81
Meat																
B	138.21	157.55	116.56	132.87	198.78	226.61	298.07	339.80	492.48	561.43	621.94	709.01	1153.35	1314.82	323.87	369.21
M	45.82	54.06	3.57	4.21	19.33	22.81	42.24	49.85	93.32	110.12	223.63	263.89	385.69	455.11	58.22	68.70
P	5.82	21.59	20.49	76.02	38.19	141.69	52.86	196.12	82.20	304.97	47.04	174.52	0.00	0.00	1.86	6.91
CH	0.00	0.00	5.89	6.43	0.19	0.20	2.28	2.48	19.79	21.57	41.86	45.63	76.69	83.59	0.38	0.41
Fish																
FI	142.70	186.23	244.06	318.50	214.06	279.35	282.57	368.76	325.35	424.59	389.61	508.44	840.63	1097.03	284.35	371.08
FD	218.30	534.85	137.45	336.75	175.39	429.70	173.52	425.13	194.25	475.93	221.62	542.97	216.64	530.78	184.72	452.56
FO	0.00	0.00	0.00	0.00	25.55	48.05	25.55	48.05	114.73	215.70	152.79	287.24	254.74	478.92	0.85	1.60
Eggs	31.86	55.12	17.24	29.83	21.74	37.61	49.10	84.95	125.58	217.26	256.79	444.25	624.17	1079.82	137.95	238.66
Vegitables																
V	3955.12	1028.33	3279.37	852.63	3339.00	868.13	4054.50	1054.16	3517.87	914.64	4014.75	1043.83	7453.12	1937.81	3557.62	924.98
Pulses																
PU1	688.41	2361.26	620.53	2128.45	603.49	2070.00	768.50	2635.96	875.57	3003.21	915.04	3138.61	1122.08	3848.74	658.87	2259.95
PU2	170.39	592.99	354.99	1235.39	263.55	917.16	354.99	1235.39	474.27	1650.49	408.95	1423.18	539.59	1877.80	176.07	612.75
PU3	0.00	0.00	26.41	86.36	124.39	406.76	53.39	174.59	106.49	348.25	133.47	436.47	727.03	2377.41	54.24	177.37
Nuts and Oils																
CT	5214.23	23151.21	4089.59	18157.82	5043.83	22394.64	5272.17	23408.45	6345.69	28174.88	6652.41	29536.71	7725.93	34303.14	5347.15	23741.34
O	477.11	4294.07	410.02	3690.22	424.93	3824.41	439.84	3958.60	514.39	4629.55	596.39	5367.59	670.94	6038.54	603.85	5434.69
MG	0.00	0.00	0.00	0.00	5.39	41.54	0.00	0.00	3.69	28.42	14.48	111.52	50.83	391.43	0.85	6.56
Milk and Milk Products																
MK	251.19	168.29	177.31	118.79	591.03	395.99	650.14	435.59	1248.57	836.54	2681.84	1796.83	3767.87	2524.47	443.27	296.99
MO	55.09	240.21	95.13	414.81	30.38	132.49	98.83	430.90	159.60	695.89	262.41	1144.13	119.84	522.53	61.91	269.93
MB	0.28	2.07	0.85	6.21	0.56	4.14	1.70	12.42	3.40	24.84	8.52	62.11	28.68	209.10	0.56	4.14
Fruits, Sugar and Beverages																
FP	176.39	183.45	125.99	131.03	188.99	196.55	220.49	229.31	535.49	556.91	1259.99	1310.39	1889.99	1965.59	346.49	360.35
SU	2112.95	8409.57	1908.47	7595.74	2062.97	8210.64	2362.87	9404.25	2953.59	11755.32	3512.51	13979.79	4280.44	17036.17	2690.04	10706.38
T	298.48	113.42	280.30	106.51	285.70	108.56	325.17	123.56	347.89	132.20	484.50	184.11	540.16	205.26	284.28	108.02
CFE	0.00	0.00	18.46	8.49	14.76	6.79	28.11	12.93	58.50	26.91	106.21	48.85	184.31	84.78	11.36	5.22
Total Per day		1903		1838		1915		2017		2157		2385		3147		1944
Average Expenditure per head [Rs. per two months]		31.04		28.78		29.06		32.06		39.09		52.09		82.18	80.83	

TABLE B.4
AVERAGE QUANTITIES OF FOOD CONSUMED AND CALORIC VALUES PER HEAD FOR TWO MONTHS - BY INCOME GROUPS
ESTATE SECTOR - 1963

Item	Income Group of Spending units [Rs. per two months] 00-50 Qty	00-50 Cal.	51-100 Qty	51-100 Cal.	101-200 Qty	101-200 Cal.	201-400 Qty	201-400 Cal.	401-800 Qty	401-800 Cal.	801-1600 Qty.	801-1600 Cal.	1600-2000 Qty	1600-2000 Cal.	Overall Qty	Overall Cal.
Cereal and Cereal preperations																
Rice	15604.09	53834.10	19366.52	66814.50	21756.66	75060.50	20920.57	72175.95	18212.34	62832.59	14813.43	51106.35	23619.70	81487.98	18975.73	65466.28
Flour	0.00	0.00	7902.01	27499.00	8665.40	30155.60	10092.22	35120.92	11637.17	40497.37	10905.59	37951.46	5275.58	18359.01	9192.50	31989.92
Bread	0.00	0.00	2399.23	5878.11	1881.21	4608.97	1894.84	4642.37	1663.10	4074.60	845.18	2070.70	1690.36	4141.40	1785.79	4375.18
Grains	0.00	0.00	757.42	2484.36	393.90	1292.01	318.07	1043.30	454.39	1490.43	393.90	1292.01	908.79	2980.86	402.99	1321.82
Starch Foods																
Potato	0.00	0.00	1681.93	1631.47	2292.22	2223.45	2426.31	2353.52	2337.00	2266.89	1860.54	1804.72	535.82	519.74	2333.76	2263.75
pulses																
Dhal	440.19	1509.88	1394.15	4781.95	1476.79	5065.42	1531.89	5254.40	1632.71	5600.21	1678.72	5758.02	2385.03	8180.65	1599.20	5485.26
G. Gram	0.00	0.00	91.44	318.23	365.79	1272.95	354.43	1233.42	445.87	1551.66	697.50	2427.31	1395.00	4854.62	370.90	1290.74
Other	0.00	0.00	183.74	600.85	633.60	2071.88	651.77	2131.31	708.57	2317.05	991.72	3242.94	2006.17	6560.19	690.40	2257.62
Meat																
Beef	0.00	0.00	448.52	511.32	219.78	250.55	296.10	337.55	282.54	322.10	323.00	368.22	1457.98	1662.10	296.10	337.55
Mutton	0.00	0.00	526.30	621.04	366.56	432.54	437.18	515.88	615.42	726.20	92.48	109.12	0.00	0.00	441.39	520.84
Pork	0.00	0.00	55.42	205.62	21.19	78.62	14.90	55.29	59.61	221.17	117.13	434.57	0.00	0.00	33.99	126.13
Poultry	0.00	0.00	0.00	0.00	5.32	5.80	201.54	219.67	48.71	53.10	32.92	35.88	1277.37	1392.34	8.56	9.33
Fish																
Fresh	0.00	0.00	200.39	261.51	154.42	201.52	150.87	196.89	148.56	193.88	213.35	278.42	2121.12	2768.06	91.41	119.29
Dried	0.00	0.00	458.79	1124.05	398.05	975.22	444.07	1087.98	392.45	961.51	324.24	794.40	845.86	2072.35	459.62	1126.08
Other	0.00	0.00	101.95	191.67	123.25	231.72	101.95	191.67	157.05	295.25	12.78	24.02	2378.21	4471.04	88.03	165.51
Eggs	0.00	0.00	69.35	119.98	73.47	127.11	372.25	644.00	105.34	182.24	55.48	95.98	66.72	115.44	93.71	162.13
Vegetables																
	763.79	198.58	3043.65	791.35	7083.44	1841.69	4842.74	1259.11	3461.62	900.02	3588.82	933.09	1971.59	512.61	4201.57	1092.40
Nuts and Oils/Fats																
CT	1431.35	6355.23	6066.23	26934.09	3779.47	16780.84	4345.19	19292.67	4157.75	18460.44	5077.91	22545.95	7991.75	35483.39	4133.90	18354.52
O	0.00	0.00	1013.87	9124.91	1036.24	9326.20	1192.79	10735.19	1192.79	10735.19	1133.15	10198.43	1461.17	13150.61	1185.34	10668.10
Milk and Milk products																
Fresh	0.00	0.00	3191.61	2138.38	2984.75	1999.78	2748.33	1841.38	3147.28	2108.68	4366.30	2925.42	2327.21	1559.23	2962.58	1984.93
Other	0.00	0.00	395.32	1723.62	0.00	0.00	57.08	248.88	28.40	123.82	126.37	551.01	40.04	174.59	45.43	198.11
Butter	0.00	0.00	0.00	0.00	1.42	10.35	1.42	10.35	0.56	4.14	1.98	14.49	0.00	0.00	1.13	8.28
Fruits, Sugar and Beverages																
FP	0.00	0.00	544.31	566.09	229.31	238.49	224.90	233.90	260.81	271.25	350.90	364.94	539.90	561.50	261.44	271.90
SU	2735.48	10887.23	3471.61	13817.02	2022.07	8047.87	2167.48	8626.59	2167.48	8626.59	2431.03	9675.53	4375.87	17415.96	2181.11	8680.85
T	175.79	66.80	581.34	220.91	522.84	198.68	508.07	193.06	566.86	215.40	718.23	272.92	1143.38	434.48	566.86	215.40
CFE	0.00	0.00	0.00	0.00	0.00	0.00	10.79	4.96	4.54	2.09	65.03	29.91	328.87	151.28	4.54	2.09
Total Calories		71341.96		163578.15		157432.43		164395.93		159433.75		149547.90		200828.87		135500.00
Per day		1189		2726		2624		2740		2657		2492		3342		2250
Average expenditure per head [Rs. per two months]		21.53		54.57		50.41		51.62		53.52		55.14		83.68		52.40

TABLE B.5
AVERAGE QUANTITIES OF FOOD CONSUMED AND CALORIC VALUES PER HEAD FOR TWO MONTHS -BY INCOME GROUPS
URBAN SECTOR - 1973

	Incomes of spending units per two months [Rupees]															
	0-50		51-100		101-200		201-400		401-600		601-800		801-1600		1601-2000	
	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.
Cereal and cereal preparations																
R	9097.08	31384.93	15513.21	53520.57	10269.43	35429.55	14849.78	51231.75	12341.50	42578.17	14368.12	49570.02	13495.67	46560.07	13404.79	46246.53
F	908.79	3162.62	1395.00	4854.62	1753.98	6103.86	1505.48	5239.08	1895.13	6595.05	1614.53	5618.59	1975.50	6874.75	1754.26	6104.84
BD	908.79	2226.55	3877.45	9499.75	4224.78	10350.71	4008.65	9821.21	4291.23	10513.53	5119.66	12543.18	6205.68	15203.91	4629.48	11342.23
Other grains																
K	0.00	0.00	0.00	0.00	99.96	327.89	254.46	834.64	645.24	2116.41	945.15	3100.09	4689.40	15381.25	845.18	2772.20
Starch foods																
MN	0.00	0.00	695.23	1091.51	197.70	310.39	341.33	535.90	294.26	461.99	159.32	250.13	189.25	297.13	246.46	386.95
POT	1151.23	1116.69	0.00	0.00	114.12	110.70	202.34	196.27	250.37	242.86	423.85	411.13	693.11	672.32	343.72	333.41
SPOT	0.00	0.00	205.91	236.80	227.15	261.23	171.63	197.38	107.66	123.81	90.04	103.54	68.79	79.11	113.69	130.75
Pulses																
PU1	908.79	3117.18	333.13	1142.64	406.68	1394.93	352.15	1207.90	453.54	1555.66	481.94	1653.08	484.21	1660.87	456.10	1564.43
PU2	0.00	0.00	0.00	0.00	35.49	123.53	18.46	64.24	50.83	176.90	32.09	111.68	56.80	197.66	48.56	169.00
PU3	0.00	0.00	0.00	0.00	0.00	0.00	24.13	78.93	18.46	60.36	17.89	58.50	56.80	185.73	21.86	71.50
Meat																
B	1399.59	1595.54	279.91	319.10	250.17	285.20	189.82	216.39	289.54	330.07	518.94	591.59	874.74	997.21	411.78	469.43
M	0.00	0.00	0.00	0.00	14.92	17.60	5.46	6.44	8.19	9.67	27.11	31.99	84.07	99.20	22.06	26.04
P	0.00	0.00	0.00	0.00	5.58	20.73	7.45	27.64	11.87	44.06	26.54	98.49	97.80	362.86	21.19	78.62
CH	0.00	0.00	0.00	0.00	4.56	4.97	19.02	20.74	2.28	2.48	19.97	21.77	133.19	145.18	19.21	20.94
Fish																
FI	1704.00	2223.71	1022.39	1334.23	647.69	845.24	756.68	987.47	1025.23	1337.93	1260.42	1644.85	1227.23	1601.54	1085.58	1416.69
FD	442.21	1083.41	265.36	650.15	180.15	441.39	209.18	512.50	236.96	580.56	205.86	504.37	231.36	566.85	216.44	530.27
FO	0.00	0.00	0.00	0.00	0.00	0.00	9.08	17.08	15.62	29.36	24.99	46.98	48.56	91.30	19.59	36.84
Eggs	0.00	0.00	0.00	0.00	48.35	83.66	62.60	108.30	82.47	142.67	199.43	345.02	396.99	686.80	155.20	268.49
Vegetables																
V	3150.00	818.99	5821.87	1513.68	2053.12	533.81	2193.75	570.37	2615.62	680.06	3656.25	950.62	4668.75	1213.87	3066.74	797.35
Condiments																
CO1	122.97	302.51	189.42	465.99	72.41	178.15	92.29	227.05	117.57	289.23	170.68	419.88	209.02	514.19	138.30	340.23
CO2	85.11	22.12	749.67	194.91	314.13	81.67	294.45	76.55	274.25	71.30	298.28	77.55	287.80	74.82	288.57	75.02
CO3	75.82	154.68	0.00	0.00	10.22	20.85	12.49	25.49	15.90	32.44	18.17	37.07	29.82	60.83	19.59	39.97
CO4	908.79	490.75	643.82	347.66	339.94	183.57	321.77	173.75	367.77	198.60	471.43	254.57	547.55	295.67	409.52	221.14
CO5	257.57	373.48	19.31	28.00	19.79	28.70	16.17	23.45	19.79	28.70	28.00	40.60	36.69	53.20	24.14	35.00
CO6	143.80	437.16	16.72	50.85	59.35	180.44	45.59	138.61	56.11	170.59	70.14	213.24	88.76	269.84	62.59	190.28
CO7	218.61	128.98	188.10	110.98	131.85	77.79	126.93	74.89	130.21	76.82	156.29	92.21	176.46	104.11	142.84	84.27
CO8	0.00	0.00	45.43	128.59	57.08	161.54	40.32	114.12	55.09	155.92	45.72	129.39	83.21	235.48	52.53	148.68
CO9	454.39	1308.67	455.91	1313.04	454.80	1309.83	454.71	1309.57	454.76	1309.71	454.78	1309.78	454.83	1309.92	454.77	1309.74
CO10	0.00	0.00	111.37	396.50	73.58	261.97	57.96	206.34	74.72	266.02	82.96	295.35	73.58	261.97	75.29	268.04
CO11	75.82	252.50	15.05	50.12	14.48	48.23	8.23	27.42	18.74	62.41	24.42	81.33	11.36	37.82	19.59	65.25
CO12	0.00	0.00	0.00	0.00	7.95	43.02	9.08	49.16	15.62	84.50	23.57	127.52	23.85	129.06	18.46	99.86
Nuts and Oils																
CT	2416.27	10728.24	8506.36	37768.26	3513.64	15600.59	3718.12	16508.48	4130.49	18339.39	4679.18	20775.57	5336.92	23695.95	4239.55	18823.60
O	976.60	8789.44	708.22	6374.02	834.95	7514.63	618.76	5568.88	894.59	8051.39	976.60	8789.44	1356.80	12211.28	1103.33	9930.05
MG	0.00	0.00	0.00	0.00	11.36	87.47	3.69	28.42	4.82	37.17	17.89	137.76	43.16	332.39	12.49	96.21
Milk and milk Products																
MK	0.00	0.00	0.00	0.00	384.17	257.39	923.49	618.74	827.45	554.39	2622.73	1757.23	6952.10	4657.91	1787.89	1197.88
MO	1060.17	4622.34	30.38	132.49	96.84	422.23	115.01	501.48	227.19	990.59	262.41	1144.13	260.14	1134.22	228.33	995.54
MB	0.00	0.00	0.00	0.00	13.06	95.23	6.24	45.54	3.12	22.77	23.28	169.76	46.85	341.60	19.02	138.71
Fruits, Sugar and Beverages																
FP	1385.99	1441.43	100.79	104.83	9.13	9.50	34.64	36.03	36.53	38.00	62.68	65.19	88.82	92.38	59.21	61.58
SU	2271.99	9042.55	1984.30	7897.54	1465.15	5831.31	1614.82	6426.99	1965.56	7822.94	2220.31	8836.83	2448.64	9745.61	2034.57	8097.60
SH	0.00	0.00	0.00	0.00	58.44	232.70	64.46	219.19	40.32	137.11	47.71	162.22	29.25	99.45	47.71	162.22
T	303.02	115.15	340.79	129.50	222.08	84.39	234.29	89.03	229.47	87.19	241.39	91.73	285.41	108.45	239.12	90.86
CFE	0.00	0.00	147.67	67.93	34.36	15.80	30.38	13.97	38.33	17.63	79.23	36.44	68.15	31.35	54.81	25.21
Total		81029.30		127768.05		87616.19		102769.17		104283.65		120373.90		146205.40		113138.52
Per day		1350		2129		1460		1712		1740		2006		2346		1886
Average expenditure per head		76.90		69.47		47.97		49.86		60.82		76.58		99.57		68.05

TABLE B.6
AVERAGE QUANTITIES OF FOOD CONSUMED AND CALORIC VALUES PER HEAD FOR TWO MONTHS - BY INCOME GROUPS
RURAL SECTOR - 1973

	Income grpup of spending units [Rs. per two months]															
	0-50		51-100		101-200		201-400		401-800		801-1600		1601-200		overall	
	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.
Cereal and cereal preperations																
R	4834.81	16680.10	9942.26	34300.82	11868.92	40947.78	13586.55	46873.61	14722.55	50792.80	15922.16	54931.47	18275.96	63052.05	14649.85	50541.98
F	908.79	3162.62	1389.61	4835.84	1946.25	6772.95	2261.77	7870.97	2192.47	7629.82	1813.62	6311.40	2776.38	9661.81	2117.21	7367.92
BD	1170.07	2866.69	1007.91	2469.39	2444.38	5988.74	2634.09	6453.54	2565.37	6285.15	3013.52	7383.12	2663.63	6525.90	2671.01	6543.99
Other Grains																
K	0.00	0.00	2417.40	7929.09	3471.61	11386.89	2362.87	7750.24	1117.82	3666.46	1426.81	4679.95	90.87	298.08	1508.60	4948.23
Starch foods																
MN	0.00	0.00	1191.79	1871.11	713.09	1119.55	769.10	1207.48	693.78	1089.23	561.97	882.30	648.88	1018.74	679.78	1067.25
POT	0.00	0.00	66.37	64.37	60.97	59.14	94.69	91.85	141.91	137.65	291.11	282.38	569.54	552.46	172.94	167.75
SPOT	0.00	0.00	33.07	38.03	121.66	139.91	193.36	222.36	258.05	296.76	255.40	293.71	363.78	418.35	244.05	280.66
Meat																
B	0.00	0.00	55.98	63.82	67.13	76.53	58.60	66.81	104.53	119.16	206.00	234.84	434.09	494.86	128.58	146.59
M	0.00	0.00	0.00	0.00	1.47	1.73	1.05	1.24	3.78	4.46	7.35	8.68	0.00	0.00	5.46	6.44
P	0.00	0.00	0.00	0.00	5.12	19.00	12.57	46.65	16.30	60.47	40.28	149.46	178.61	662.66	22.12	82.07
CH	0.00	0.00	0.00	0.00	4.18	4.56	1.52	1.65	0.57	0.62	7.23	7.88	49.09	53.51	3.99	4.35
Fish																
FI	0.00	0.00	333.87	435.70	260.74	340.27	343.10	447.75	509.95	665.49	668.46	872.34	1154.81	1507.03	514.92	671.98
FD	47.26	115.80	225.56	552.62	259.35	635.42	289.62	709.57	345.60	846.72	434.12	1063.60	421.27	1032.11	348.08	852.81
FO	0.00	0.00	0.00	0.00	9.94	18.68	7.10	13.34	12.49	23.49	19.02	35.77	7.95	14.94	12.21	22.95
Eggs	0.00	0.00	2.62	4.53	32.23	55.77	24.74	42.80	55.85	96.63	121.46	210.12	353.51	611.57	70.10	121.27
Vegetables																
V	1889.99	491.39	2885.34	750.18	3227.90	839.25	3430.40	891.90	3686.34	958.44	4541.90	1180.89	4833.84	1256.79	3828.37	995.37
Pulses																
PU1	291.95	1001.39	273.49	938.07	437.07	1499.17	447.86	1536.18	465.75	1597.55	536.75	1841.08	613.43	2104.09	476.26	1633.59
PU2	0.00	0.00	0.00	0.00	35.21	122.55	24.13	84.00	39.19	136.38	60.20	209.52	111.61	388.40	32.09	111.68
PU3	0.00	0.00	0.00	0.00	4.82	15.78	15.33	50.14	25.84	84.50	23.00	75.22	116.43	380.75	24.99	81.72
Condiments																
CO1	17.03	41.91	43.73	107.59	75.25	185.13	79.23	194.92	102.23	251.51	134.61	331.15	177.21	435.95	104.79	257.79
CO2	160.51	41.73	479.50	124.67	472.85	122.94	438.86	114.10	427.10	111.04	439.63	114.30	492.02	127.92	434.00	112.84
CO3	0.00	0.00	17.32	35.34	12.21	24.91	7.10	14.48	13.63	27.80	24.13	49.24	38.90	79.37	15.05	30.70
CO4	0.00	0.00	226.91	122.53	252.47	136.33	242.25	130.81	298.48	161.18	387.09	209.02	553.51	298.89	307.57	166.08
CO5	0.00	0.00	8.93	12.95	14.00	20.30	14.00	20.30	19.79	28.70	28.24	40.95	42.96	62.30	21.24	30.80
CO6	16.18	49.21	45.86	139.43	49.10	149.27	48.29	146.81	50.72	154.19	68.52	208.32	71.49	217.35	54.22	164.85
CO7	0.00	0.00	126.44	74.60	123.98	73.15	106.10	62.60	106.92	63.08	122.50	72.27	163.50	96.46	112.01	66.08
CO8	0.00	0.00	6.53	18.48	17.03	48.22	21.86	61.88	19.31	54.65	25.84	73.13	47.99	135.82	26.12	73.94
CO9	454.43	1308.77	454.67	1309.45	454.80	1309.84	454.76	1309.72	454.77	1309.74	454.81	1309.86	454.81	1309.85	454.78	1309.77
CO10	17.04	60.68	80.69	287.26	95.18	338.84	75.57	269.05	80.12	285.23	86.37	307.49	87.51	311.53	80.97	288.27
CO11	0.00	0.00	12.21	40.66	20.16	67.14	12.78	42.55	18.46	61.47	23.28	77.54	26.41	87.95	18.46	61.47
CO12	0.00	0.00	4.54	24.58	7.10	38.41	10.50	56.84	12.21	66.06	19.87	107.55	17.03	92.18	13.34	72.21
Nuts and Oils																
CT	2065.24	9169.69	4900.70	21759.11	4975.67	22092.00	4542.86	20170.30	4699.63	20866.35	5180.15	22999.90	6710.35	29793.95	4778.01	21214.38
O	514.39	4629.55	544.21	4897.93	670.94	6038.54	544.21	4897.93	663.49	5971.45	685.85	6172.73	931.87	8386.87	723.13	6508.21
MG	0.00	0.00	0.00	0.00	8.52	65.60	4.82	37.17	8.80	67.79	10.50	80.91	40.61	312.71	1.42	10.93
Milk and Milk products																
MK	0.00	0.00	0.00	0.00	347.23	232.64	435.89	292.04	812.67	544.49	1396.33	935.54	4100.33	2747.22	923.49	618.74
MO	0.00	0.00	25.27	110.20	20.73	90.39	57.93	252.60	86.05	375.18	162.44	708.27	168.12	733.03	96.84	422.23
MB	0.00	0.00	2.55	18.63	1.70	12.42	0.56	4.14	0.56	4.14	6.24	45.54	14.76	107.65	3.12	22.77
Fruits, Sugar and beverages																
FP	0.00	0.00	1.89	1.96	10.71	11.13	9.45	9.82	25.51	26.53	68.03	70.76	32.75	34.07	30.55	31.77
SU	550.95	2192.81	1537.29	6118.41	1527.91	6081.11	1574.21	6265.36	1831.51	7289.42	783.83	3119.68	1314.35	5231.11	1834.92	7302.99
SH	32.37	110.07	38.33	130.35	51.40	174.77	42.03	142.90	49.41	168.01	67.59	229.81	20.73	70.48	23.00	78.21
T	149.95	56.98	293.65	111.58	255.31	97.02	232.59	88.38	222.37	84.50	242.53	92.16	336.53	127.88	232.02	88.17
CFE	0.00	0.00	24.42	11.23	14.48	6.66	9.65	4.44	17.60	8.09	28.68	13.19	42.88	19.72	18.74	8.62
Total		40936.17		88542.62		105640.23		107089.87		110462.78		115642.65		138016.22		112533.59
Per day		682		1476		1760		1785		1841		1927		2300		1875
Average expenditure per head		16.82		40.30		45.97		47.35		55.32		68.79		94.23		57.22

TABLE B.7
AVERAGE QUANTITIES OF FOOD CONSUMED AND CALORIC VALUES PER HEAD PER TWO MONTHS - BY INCOME GROUPS
ESTATE SECTOR - 1973

	Income group of spending units															
	0-50		51-100		101-200		201-400		401-800		801-1600		1601-2000		Overall	
	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.
Cereal and cereal preperations																
R	12723.19	43895.02	7006.84	24173.61	15431.42	53238.39	14186.36	48942.95	15449.59	53301.10	14677.11	50636.03	11814.39	40759.67	14958.84	51608.00
F	0.00	0.00	3384.71	11778.79	9893.13	34428.10	11481.83	39956.77	11655.92	40562.60	8892.03	30944.28	9315.19	32416.88	10977.44	38201.51
BD	0.00	0.00	616.56	1510.58	1737.51	4256.90	847.45	2076.26	969.00	2374.06	1089.70	2669.78	3180.79	7792.95	1014.73	2486.09
K	0.00	0.00	0.00	0.00	54.52	178.85	1308.67	4292.44	18.17	59.61	2335.61	7660.81	0.00	0.00	763.39	2503.92
Starch Foods																
MN	0.00	0.00	0.00	0.00	545.32	856.15	498.00	781.87	419.07	657.94	420.76	660.59	0.00	0.00	432.58	679.16
POT	0.00	0.00	0.00	0.00	95.23	92.38	148.65	144.19	152.16	147.60	258.19	250.45	755.43	732.77	182.92	177.43
SPOT	0.00	0.00	0.00	0.00	317.92	365.61	149.18	171.56	128.90	148.24	110.80	127.42	0.00	0.00	125.52	144.35
Meat																
B	0.00	0.00	0.00	0.00	0.00	0.00	37.39	42.63	53.35	60.83	127.93	145.84	1224.64	1396.10	89.66	102.21
M	0.00	0.00	0.00	0.00	0.00	0.00	19.12	22.56	35.31	41.66	35.73	42.16	0.00	0.00	32.57	38.44
P	0.00	0.00	0.00	0.00	1.39	5.18	4.65	17.27	5.82	21.59	0.00	0.00	0.00	0.00	10.94	40.60
CH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.46	7.05	0.00	0.00	0.00	0.00	18.45	20.11
Fish																
FI	0.00	0.00	0.00	0.00	66.73	87.09	49.16	64.16	60.88	79.45	110.22	143.84	284.00	370.61	73.84	96.36
FD	331.70	812.68	173.73	425.64	229.91	563.29	268.68	658.27	251.89	617.13	249.81	612.05	0.00	0.00	252.72	619.16
FO	0.00	0.00	0.00	0.00	26.69	50.18	0.00	0.00	19.02	35.77	6.81	12.81	0.00	0.00	12.21	22.95
Eggs	0.00	0.00	0.00	0.00	26.61	46.04	76.10	131.65	93.34	161.48	109.09	188.72	393.62	680.96	104.96	181.59
Vegetables																
V	900.00	233.99	685.68	178.27	3778.59	982.43	3189.37	829.23	3322.68	863.89	3702.37	962.61	3600.00	935.99	3401.15	884.30
Pulses																
PU1	0.00	0.00	216.40	742.27	898.85	3083.08	834.10	2860.98	808.54	2773.31	862.79	2959.37	397.59	1363.76	821.04	2816.17
PU2	0.00	0.00	0.00	0.00	0.00	0.00	7.10	24.70	1.70	5.92	13.63	47.43	0.00	0.00	69.29	241.14
PU3	0.00	0.00	21.86	71.50	203.62	665.86	112.17	366.82	140.57	459.69	95.99	313.89	0.00	0.00	60.77	198.73
Condiments																
CO1	0.00	0.00	70.43	173.26	88.60	217.97	68.15	167.67	84.06	206.79	86.05	211.68	99.39	244.52	83.77	206.09
CO2	817.91	212.65	224.16	58.28	739.70	192.32	558.74	145.27	484.87	126.06	461.61	120.01	562.31	146.20	501.99	130.51
CO3	0.00	0.00	32.37	66.04	6.81	13.90	10.79	22.01	18.17	37.07	12.21	24.91	0.00	0.00	15.62	31.86
CO4	0.00	0.00	216.40	116.86	370.90	200.28	324.32	175.13	315.52	170.38	415.49	224.36	340.79	184.03	341.65	184.49
CO5	0.00	0.00	36.69	53.20	67.59	98.00	58.90	85.40	56.00	81.20	55.03	79.80	48.28	70.00	57.45	83.30
CO6	0.00	0.00	15.37	46.75	95.23	289.52	74.73	227.19	63.67	193.56	62.59	190.28	53.96	164.03	67.18	204.22
CO7	0.00	0.00	59.03	34.83	115.78	68.31	65.27	38.51	55.10	32.51	65.76	38.80	122.99	72.56	62.64	36.96
CO8	0.00	0.00	75.54	213.78	203.91	577.07	154.21	436.41	142.28	402.66	119.56	338.36	56.80	160.74	141.14	399.44
CO9	454.39	1308.67	454.63	1309.35	454.98	1310.36	454.81	1309.88	454.83	1309.92	454.81	1309.88	454.64	1309.39	454.83	1309.91
CO10	0.00	0.00	51.42	183.07	160.53	571.48	105.12	374.24	90.63	322.66	103.42	368.18	85.23	303.44	98.59	350.98
CO11	0.00	0.00	32.37	107.81	49.98	166.44	51.40	171.17	47.99	159.82	56.80	189.14	42.59	141.85	50.83	169.28
CO12	0.00	0.00	2.55	13.82	43.45	235.07	36.91	199.73	38.33	207.41	32.94	178.22	56.80	307.28	37.48	202.81
Nuts and Oils/fats																
CT	7051.15	31307.10	2457.16	10909.82	7054.55	31322.23	4709.85	20911.75	4212.28	18702.55	4396.31	19519.65	4328.15	19217.02	4437.21	19701.23
O	685.85	6172.73	723.13	6508.21	879.68	7917.20	723.13	6508.21	872.23	7850.11	909.50	8185.58	1230.07	11070.66	961.69	8655.25
MG	0.00	0.00	43.16	332.39	0.85	6.56	3.12	24.05	4.26	32.80	5.96	45.92	0.00	0.00	3.69	28.42
Milk and Milk products																
MK	0.00	0.00	0.00	0.00	1824.83	1222.63	3110.34	2083.93	2992.13	2004.73	3110.34	2083.93	2585.79	1732.48	3095.57	2074.03
MO	0.00	0.00	0.00	0.00	0.00	0.00	59.35	258.79	36.63	159.73	44.58	194.40	0.00	0.00	43.16	188.21
MB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.40	24.84	0.00	0.00	1.70	12.42
Fruits, Sugar and beverages																
FP	0.00	0.00	96.07	99.91	14.80	15.39	32.12	33.41	56.38	58.64	63.62	66.17	0.00	0.00	59.21	61.58
SU	908.79	3617.02	822.17	3272.27	1520.53	6051.73	1494.97	5950.00	1633.56	6501.59	1697.75	6757.05	1476.79	5877.66	1613.11	6420.21
SH	0.00	0.00	65.03	221.12	187.15	636.33	81.79	278.09	63.89	217.25	40.32	137.11	0.00	0.00	67.87	230.77
T	454.39	172.67	108.20	41.11	688.41	261.59	481.66	183.03	431.11	163.82	384.81	146.23	227.19	86.33	437.64	166.30
CFE	0.00	0.00	0.00	0.00	0.00	0.00	9.94	4.57	6.81	3.13	20.44	9.40	0.00	0.00	11.07	5.09
Total		87732.56		61610.35		146774.25		137770.44		138174.34		135427.87		125747.69		138710.34
Per day		1462		1026		2446		2296		2303		2257		2096		2312
Average expenditure per head		32.88		28.86		73.27		64.77		65.80		66.40		72.74		66.83

TABLE B.8
AVERAGE QUANTITY OF FOOD CONSUMED AND CALORIC VALUES PER HEAD FOR ONE MONTH - BY INCOME GROUPS
URBAN SECTOR - 1979

	Income group of spending unit [Rs. per month]															
	0-100		101-200		201-400		401-600		601-800		801-1000		1000-1500		1501-200	
	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.
Cereal and Cereal Preperations																
R	6052.60	20881.48	5580.03	19251.10	6143.48	21195.02	6161.66	21257.73	6107.13	21069.61	6925.05	23891.43	6634.23	22888.11	6879.61	23734.66
F	430.82	1499.28	984.05	3424.52	498.70	1735.48	481.09	1674.21	573.96	1997.39	817.06	2843.39	735.84	2560.73	789.80	2748.51
BD	2442.96	5985.26	3730.90	9140.72	3260.31	7987.78	2886.85	7072.80	3089.91	7570.30	3211.47	7868.10	3088.49	7566.82	3704.21	9075.31
CE	79.80	267.34	92.58	310.15	10.50	35.20	15.33	51.37	17.60	58.98	18.17	60.88	44.87	150.32	46.00	154.12
Meat																
B	56.64	64.56	258.92	295.17	231.15	263.51	100.15	114.18	132.74	151.32	181.07	206.42	200.09	228.11	262.20	298.91
M	0.42	0.49	4.41	5.20	5.46	6.44	6.93	8.18	6.51	7.68	9.03	10.66	15.34	18.10	25.64	30.25
P	0.00	0.00	52.39	194.39	1.86	6.91	5.58	20.73	8.38	31.10	6.52	24.19	4.42	16.41	5.35	19.87
CH	65.26	71.14	63.36	69.06	9.89	10.78	13.31	14.51	13.50	14.72	3.80	4.14	19.02	20.74	14.08	15.34
Fish																
FI	489.89	639.31	461.85	602.72	438.42	572.14	485.28	633.29	497.00	648.58	585.57	764.17	573.50	748.42	585.57	764.17
FD	84.37	206.72	118.79	291.04	118.58	290.53	116.09	284.44	126.25	309.32	124.39	304.75	123.35	302.21	137.24	336.25
FO	9.94	18.68	28.68	53.92	15.33	28.83	7.66	14.41	16.47	30.96	16.47	30.96	16.47	30.96	24.70	46.45
Eggs	56.98	98.57	124.08	214.66	74.22	128.41	27.36	47.34	34.48	59.66	73.47	127.11	65.60	113.49	96.34	166.67
Starch Foods																
BR	788.83	749.39	184.48	175.26	127.23	120.87	146.31	139.00	267.18	253.82	178.12	169.21	114.50	108.78	190.84	181.30
MN	162.70	255.44	52.14	81.86	92.21	144.77	127.70	200.48	94.62	148.56	39.10	61.39	58.66	92.09	34.76	54.57
POT	230.67	223.75	265.48	257.51	145.15	140.79	138.94	134.77	162.95	158.07	208.82	202.56	268.18	260.13	282.21	273.74
SPOT	96.80	111.32	79.17	91.05	26.55	30.53	29.69	34.14	47.07	54.13	44.17	50.80	48.03	55.24	85.93	98.82
Vegetables																
V	1672.59	434.87	2138.34	555.96	1859.34	483.42	1668.65	433.85	1848.09	480.50	2189.53	569.27	2463.46	640.50	2659.49	691.46
Pulses																
PU1	94.57	324.38	143.70	492.90	96.84	332.17	105.64	362.37	125.81	431.53	161.31	553.29	162.44	557.19	222.93	764.68
PU2	80.93	281.67	49.98	173.94	13.63	47.43	15.62	54.35	20.16	70.17	17.03	59.29	32.94	114.64	24.13	84.00
PU3	53.67	175.52	66.73	218.23	36.35	118.87	45.15	147.66	54.52	178.30	68.72	224.74	73.27	239.59	87.75	286.96
Condiments																
CO1	151.37	372.37	139.72	343.73	130.07	319.97	124.67	306.70	128.36	315.78	139.15	342.33	140.01	344.42	153.07	376.56
CO2	26.32	6.84	77.44	20.13	90.22	23.45	89.20	23.19	101.98	26.51	109.90	28.57	116.55	30.30	136.74	35.55
CO3	0.56	1.15	1.13	2.31	1.98	4.05	1.13	2.31	0.28	0.57	0.28	0.57	0.56	1.15	0.00	0.00
CO4	314.67	169.92	395.04	213.32	322.33	174.06	307.00	165.78	299.33	161.64	361.53	195.22	416.34	224.82	466.04	251.66
CO5	21.00	30.45	11.58	16.80	15.20	22.05	4.58	6.65	7.96	11.55	5.55	8.05	8.69	12.60	11.34	16.45
CO6	15.64	47.57	11.60	35.26	10.52	31.98	12.95	39.36	14.56	44.29	15.37	46.75	20.50	62.33	19.96	60.69
CO7	12.95	7.64	27.22	16.06	14.10	8.32	20.66	12.19	19.51	11.51	24.27	14.32	28.53	16.83	36.07	21.28
CO8	8.52	24.11	63.33	179.22	38.62	109.30	50.83	143.86	44.58	126.18	52.82	149.49	48.56	137.43	57.93	163.95
CO9	454.55	1309.12	454.57	1309.16	454.53	1309.06	454.54	1309.09	454.56	1309.15	454.57	1309.16	454.58	1309.19	454.58	1309.20
CO10	15.62	55.63	17.04	60.68	14.77	52.59	15.91	56.64	14.49	51.58	15.34	54.62	16.47	58.66	18.75	66.75
CO11	0.85	2.83	3.97	13.24	10.79	35.93	4.54	15.13	9.65	32.15	6.81	22.69	7.38	24.58	7.38	24.58
CO12	0.56	3.07	7.10	38.41	8.23	44.55	7.95	43.02	8.23	44.55	9.08	49.16	8.23	44.55	8.23	44.55
Nuts and Oils/fats																
CT	2109.55	9366.40	2474.20	10985.47	2075.47	9215.08	2003.90	8897.33	2024.35	8988.11	2266.31	10062.45	2365.15	10501.26	2678.68	11893.37
O	52.18	469.66	201.28	1811.56	171.46	1543.18	178.91	1610.27	171.46	1543.18	208.73	1878.65	246.01	2214.13	231.10	2079.94
MG	4.26	32.80	52.82	406.74	2.84	21.86	4.82	37.17	6.53	50.29	3.40	26.24	9.08	69.97	14.48	111.52
Milk and Milk products																
MK	524.54	351.44	1388.94	930.59	406.33	272.24	398.95	267.29	613.20	410.84	664.91	445.49	901.33	603.89	1300.28	871.19
MO	158.75	692.17	239.97	1046.31	189.99	828.38	165.28	720.65	152.50	664.93	183.46	799.90	218.67	953.44	247.07	1077.26
MB	48.27	351.96	62.76	457.54	23.00	167.69	10.22	74.53	10.79	78.67	13.06	95.23	25.27	184.26	33.22	242.23
MC	0.00	0.00	9.08	63.61	0.56	3.97	1.42	9.94	0.85	5.96	0.00	0.00	0.00	0.00	4.26	29.81
Fruits, Sugar and beverages																
FP	128.51	133.66	191.51	199.18	147.73	153.64	89.14	92.71	124.42	129.40	165.05	171.66	211.04	219.49	311.21	323.66
FPW	102.23	32.71	238.55	76.33	54.52	17.44	54.52	17.44	74.97	23.99	109.05	34.89	95.42	30.53	102.23	32.71
FM	12.37	6.30	184.43	94.06	32.61	16.63	68.60	34.98	46.10	23.51	74.22	37.85	85.46	43.58	65.22	33.26
FPA	0.00	0.00	40.89	18.81	8.17	3.76	32.71	15.04	8.17	3.76	24.53	11.28	49.07	22.57	32.71	15.04
FOR	51.73	27.41	1.12	0.59	0.00	0.00	0.00	0.00	1.12	0.59	1.12	0.59	6.74	3.57	5.62	2.98
SU	654.61	2605.38	810.25	3224.80	691.53	2752.32	672.51	2676.59	740.38	2946.74	858.81	3418.08	980.08	3900.73	1022.11	4068.02
T	103.09	39.17	126.66	48.13	122.97	46.72	99.11	37.66	94.28	35.82	108.77	41.33	112.17	42.62	115.30	43.81
CFE	0.56	0.26	11.64	5.35	5.11	2.35	4.82	2.22	4.54	2.09	5.96	2.74	7.38	3.39	8.23	3.78
Total		47788.69		56774.32		50343.76		48705.26		50067.19		56357.54		56802.40		61766.71
Per day		1592		1892		1678		1623		1668		1879		1893		2059
Average expenditure per head		85.80		111.50		83.93		75.46		80.77		93.44		102.14		116.80

TABLE B.9
AVERAGE QUANTITY OF FOOD CONSUMED AND CALORIC VALUES PER HEAD FOR ONE MONTH - BY INCOME GROUPS
RURAL SECTOR - 1979
Income group of spending unit for one month [Rupees]

	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.
Cereal and Cereal Preperation																
R	7561.21	26086.18	7106.81	24518.50	7070.46	24393.09	7306.75	25208.28	7879.29	27183.55	8333.69	28751.23	8724.47	30099.44	9069.82	31290.88
F	728.74	2536.02	988.60	3440.34	901.69	3137.91	825.01	2871.06	847.73	2950.13	911.63	3172.50	864.49	3008.44	750.04	2610.15
BD	1909.04	4677.16	1897.97	4650.02	1918.13	4699.43	1868.43	4577.66	1788.06	4380.75	1900.52	4656.29	1919.83	4703.60	2039.68	4997.23
CE	79.23	265.44	42.59	142.70	39.47	132.24	40.61	136.05	27.83	93.23	28.11	94.18	38.90	130.34	22.15	74.20
CEK	357.27	1171.85	146.54	480.66	108.48	355.84	116.15	380.99	74.97	245.92	76.11	249.64	76.39	250.57	50.26	164.87
Meat																
B	65.16	74.29	22.96	26.17	14.65	16.70	24.27	27.67	32.80	37.39	35.20	40.13	67.13	76.53	91.19	103.95
M	0.00	0.00	1.47	1.73	1.68	1.98	2.10	2.48	2.94	3.47	4.62	5.45	6.93	8.18	10.71	12.64
P	8.61	31.96	6.98	25.91	2.09	7.77	7.68	28.51	4.42	16.41	10.01	37.15	17.69	65.66	22.58	83.80
CH	5.70	6.22	3.04	3.31	3.23	3.52	3.42	3.73	8.18	8.91	8.18	8.91	24.35	26.54	22.64	24.68
Fish																
FI	291.80	380.81	197.02	257.11	215.48	281.20	242.10	315.95	279.20	364.36	322.51	420.88	397.59	518.86	412.86	538.78
FD	221.41	542.46	196.95	482.53	175.39	429.70	189.07	463.23	188.66	462.21	199.44	488.62	215.19	527.23	230.95	565.83
FO	31.52	59.26	11.36	21.35	8.80	16.55	15.62	29.36	21.58	40.57	26.41	49.65	24.42	45.91	33.51	63.00
Eggs	88.47	153.05	16.49	28.53	14.24	24.64	19.11	33.07	30.36	52.53	33.73	58.36	50.60	87.55	82.47	142.67
Starch Foods																
BR	489.84	465.35	566.18	537.87	432.58	410.95	388.05	368.65	388.05	368.65	381.69	362.61	330.80	314.26	388.05	368.65
MN	246.22	386.57	238.02	373.69	253.95	398.70	229.08	359.66	251.53	394.91	204.22	320.63	142.18	223.22	91.97	144.39
POT	142.72	138.44	139.75	135.56	118.44	114.88	140.29	136.08	165.65	160.68	193.44	187.64	243.62	236.32	301.09	292.06
SPOT	22.69	26.09	112.00	128.81	120.94	139.08	84.97	97.71	103.31	118.81	92.69	106.60	83.76	96.33	71.45	82.17
Vegetables																
V	2507.06	651.83	2402.71	624.70	2296.68	597.13	2290.21	595.45	2428.03	631.28	2727.56	709.16	2726.43	708.87	3075.18	799.54
Pulses																
PU1	118.14	405.23	114.16	391.59	103.37	354.57	114.16	391.59	121.55	416.92	153.07	525.05	180.90	620.51	199.36	683.83
PU2	27.54	95.86	13.63	47.43	14.48	50.40	22.15	77.08	26.12	90.92	23.28	81.04	34.36	119.58	43.16	150.22
PU3	32.94	107.72	44.58	145.80	62.76	205.23	49.69	162.51	58.21	190.37	62.76	205.23	74.69	244.24	67.59	221.02
Condiments																
CO1	145.69	358.40	149.09	366.78	137.17	337.44	131.20	322.77	132.91	326.96	145.69	358.40	149.95	368.88	167.27	411.49
CO2	121.66	31.63	106.32	27.64	114.50	29.77	119.10	30.96	128.56	33.42	156.93	40.80	144.15	37.48	153.61	39.94
CO3	50.55	103.12	0.00	0.00	1.70	3.47	0.56	1.15	0.00	0.00	0.28	0.57	1.98	4.05	1.13	2.31
CO4	218.39	117.93	295.07	159.34	262.69	141.85	259.85	140.32	299.05	161.48	339.66	183.41	372.32	201.05	408.10	220.37
CO5	1.68	2.45	4.82	7.00	3.62	5.25	4.82	7.00	5.55	8.05	5.79	8.40	6.27	9.10	8.69	12.60
CO6	11.06	33.62	9.71	29.52	9.98	30.34	10.25	31.16	11.60	35.26	14.56	44.29	15.10	45.93	16.99	51.67
CO7	19.18	11.32	21.81	12.86	14.59	8.61	15.25	8.99	19.84	11.70	21.48	12.67	26.40	15.57	24.59	14.51
CO8	4.82	13.66	13.91	39.38	21.58	61.08	19.59	55.45	21.29	60.27	27.54	77.96	26.69	75.54	31.23	88.40
CO9	454.54	1309.08	454.57	1309.17	454.56	1309.13	454.54	1309.09	454.54	1309.10	454.56	1309.13	454.57	1309.17	454.57	1309.17
CO10	24.15	85.97	17.33	61.70	15.34	54.62	14.20	50.57	14.49	51.58	15.62	55.63	17.04	60.68	19.03	67.76
CO11	6.24	20.80	5.96	19.86	5.96	19.86	5.39	17.96	5.68	18.91	6.53	21.75	6.24	20.80	7.38	24.58
CO12	5.96	32.26	7.10	38.41	5.68	30.72	5.68	30.72	6.53	35.33	6.53	35.33	7.66	41.48	9.08	49.16
Nuts, Oils/Fats																
CT	2729.80	12120.34	2791.15	12392.70	2576.44	11439.42	2511.69	11151.92	2637.79	11711.79	2964.95	13164.41	2975.18	13209.81	3050.15	13542.70
O	372.74	3354.74	171.46	1543.18	178.91	1610.27	171.46	1543.18	156.55	1408.99	193.82	1744.46	193.82	1744.46	201.28	1811.56
MG	1.42	10.93	1.13	8.74	0.56	4.37	0.28	2.18	0.28	2.18	2.55	19.68	3.97	30.61	4.54	34.98
Milk and Milk Products																
MK	243.80	163.34	236.41	158.39	236.41	158.39	251.19	168.29	376.78	252.44	480.21	321.74	805.29	539.54	842.23	564.29
MO	151.93	662.45	86.61	377.66	84.06	366.51	88.89	387.56	100.53	438.33	125.52	547.30	153.35	668.64	190.56	830.85
MB	2.27	16.56	1.98	14.49	0.85	6.21	0.56	4.14	256.73	1871.60	1.42	10.35	5.39	39.33	9.08	66.25
MC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fruits, Sugar and Beverages																
FP	50.08	52.08	72.44	75.34	39.68	41.27	57.95	60.27	101.42	105.48	125.68	130.71	151.51	157.57	188.99	196.55
FPW	54.52	17.44	109.05	34.89	47.71	15.26	74.97	23.99	95.42	30.53	88.60	28.35	143.13	45.80	170.39	54.52
FM	53.98	27.53	13.49	6.88	33.73	17.20	46.10	23.51	58.47	29.82	87.71	44.73	103.46	52.76	116.95	59.64
FPA	40.89	18.81	24.53	11.28	16.35	7.52	32.71	15.04	32.71	15.04	40.89	18.81	40.89	18.81	81.79	37.62
FOR	4.49	2.38	2.24	1.19	1.12	0.59	2.24	1.19	3.37	1.78	11.24	5.96	7.87	4.17	6.74	3.57
SU	749.19	2981.78	667.11	2655.12	602.36	2397.40	615.71	2450.53	679.32	2703.72	725.33	2886.83	836.94	3331.05	942.31	3750.39
SH	119.84	407.48	153.92	523.35	104.51	355.34	99.68	338.92	92.58	314.78	99.96	339.89	87.18	296.43	82.07	279.05
T	163.58	62.16	146.54	55.68	115.87	44.03	101.67	38.63	101.67	38.63	103.37	39.28	104.22	39.60	115.01	43.70
CFE	1.13	0.52	3.12	1.43	1.70	0.78	1.42	0.65	2.27	1.04	2.27	1.04	3.97	1.82	6.24	2.87
TT		58227.57		54998.38		53078.92		53247.67		58039.38		60666.75		63041.78		65505.07
Per day		1941		1833		1769		1775		1935		2022		2101		2183
Average expenditure per head		83.17		75.72		77.15		72.73		79.32		87.55		96.11		104.96

TABLE B.10
AVERAGE QUANTITY OF FOOD CONSUMED AND CALORIC VALUES PER HEAD FOR ONE MONTH
ESTATE SECTOR - 1979

	Income group of spending unit per month [Rupees]															
	0-100		101-200		201-400		401-600		601-800		801-1000		1001-1500		1501-2000	
	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.
Cereal and Cereal Preperations																
R	5071.10	17495.30	6606.97	22794.05	7615.74	26274.30	6943.23	23954.14	7315.83	25239.63	7052.28	24330.38	8342.78	28782.58	9142.52	31541.70
F	2625.86	9138.00	6357.62	22124.52	8043.16	27990.19	7071.59	24609.15	8180.90	28469.53	8331.98	28995.31	6798.39	23658.39	6588.79	22929.01
BD	173.80	425.82	1114.41	2730.31	796.05	1950.32	728.17	1784.03	494.72	1212.08	624.79	1530.75	465.75	1141.11	502.39	1230.86
CE	0.00	0.00	0.00	0.00	8.52	28.54	19.59	65.64	19.02	63.74	52.25	175.05	25.55	85.62	6.53	21.88
CEK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12	10.24	2.27	7.45	0.00	0.00
Meat																
B	0.00	0.00	29.96	34.15	149.36	170.27	55.54	63.32	12.24	13.96	50.29	57.33	70.63	80.52	0.00	0.00
M	0.00	0.00	0.00	0.00	15.13	17.85	26.06	30.75	3.78	4.46	20.59	24.30	15.13	17.85	38.67	45.63
P	0.00	0.00	0.00	0.00	0.00	0.00	3.02	11.23	0.00	0.00	0.00	0.00	10.71	39.74	0.00	0.00
CH	0.00	0.00	0.00	0.00	0.00	0.00	20.16	21.98	20.55	22.39	19.78	21.57	12.93	14.10	210.07	228.97
Fish																
FI	0.00	0.00	0.00	0.00	32.30	42.15	54.67	71.34	43.48	56.75	18.99	24.78	59.81	78.06	171.10	223.29
FD	177.87	435.80	129.57	317.45	155.90	381.96	127.70	312.88	121.69	298.15	144.29	353.51	166.68	408.37	174.14	426.66
FO	0.00	0.00	67.87	127.60	109.90	206.62	133.19	250.40	100.25	188.47	145.40	273.36	136.88	257.34	137.73	258.95
Eggs	0.00	0.00	78.72	136.19	55.85	96.63	47.60	82.36	68.60	118.68	52.85	91.44	88.09	152.40	41.61	71.98
Starch Fodds																
BR	388.05	368.65	833.36	791.70	324.44	308.21	209.93	199.43	152.67	145.04	279.91	265.91	216.29	205.47	737.94	701.04
MN	0.00	0.00	127.45	200.11	119.01	186.84	71.45	112.18	90.52	142.12	86.42	135.68	96.07	150.84	89.07	139.85
POT	0.00	0.00	132.47	128.49	221.50	214.86	184.54	179.00	218.26	211.72	226.36	219.57	254.69	247.05	255.77	248.09
SPOT	0.00	0.00	63.72	73.28	26.55	30.53	36.93	42.47	23.65	27.20	26.55	30.53	23.17	26.65	0.00	0.00
Vegetablaes																
V	1952.71	507.70	2878.31	748.36	3335.62	867.26	2828.53	735.41	2948.90	766.71	2846.81	740.17	2823.46	734.10	3084.46	801.96
Pulses																
PU1	86.90	298.08	83.77	287.36	279.17	957.55	133.47	457.83	138.30	474.39	92.01	315.61	170.68	585.44	156.76	537.71
PU2	0.00	0.00	0.00	0.00	136.03	473.40	57.08	198.65	71.56	249.05	33.79	117.61	61.91	215.45	0.00	0.00
PU3	34.93	114.22	62.47	204.30	124.10	405.83	134.61	440.19	134.04	438.33	185.45	606.42	143.13	468.05	185.45	606.42
Condiments																
CO1	208.73	513.50	164.15	403.81	211.29	519.78	168.97	415.69	162.44	399.62	149.09	366.78	159.89	393.33	166.70	410.10
CO2	124.98	32.49	50.86	13.22	109.90	28.57	105.30	27.37	116.80	30.37	117.06	30.43	112.46	29.24	137.25	35.68
CO3	0.00	0.00	3.12	6.37	0.56	1.15	0.28	0.57	2.55	5.21	0.00	0.00	0.00	0.00	0.00	0.00
CO4	243.38	131.42	175.22	94.62	375.44	202.74	288.54	155.81	303.31	163.78	286.27	154.58	267.52	144.46	451.27	243.68
CO5	18.58	26.95	13.03	18.90	20.03	29.05	15.93	23.10	19.31	28.00	14.24	20.65	10.86	15.75	12.31	17.85
CO6	20.77	63.15	8.09	24.60	18.34	55.77	12.68	38.54	13.49	41.00	13.75	41.82	9.44	28.70	18.07	54.95
CO7	0.00	0.00	7.87	4.64	9.67	5.70	9.02	5.32	7.38	4.35	7.38	4.35	9.34	5.51	6.56	3.87
CO8	78.38	221.82	81.22	229.86	77.81	220.21	69.86	197.71	66.17	187.26	54.81	155.11	41.74	118.14	40.61	114.93
CO9	454.51	1309.00	454.53	1309.05	454.62	1309.32	454.57	1309.18	454.54	1309.07	454.56	1309.14	454.52	1309.03	454.58	1309.19
CO10	25.85	92.04	15.05	53.60	25.85	92.04	21.59	76.87	18.46	65.74	17.04	60.68	14.77	52.59	25.00	89.01
CO11	8.80	29.31	11.36	37.82	12.49	41.61	9.08	30.26	7.10	23.64	5.39	17.96	5.96	19.86	3.12	10.40
CO12	8.80	47.62	9.94	53.77	10.22	55.31	9.65	52.23	8.80	47.62	8.52	46.09	8.23	44.55	11.36	61.45
Nuts and Oils/Fats																
CT	2068.65	9184.83	2777.51	12332.18	3114.91	13830.20	2443.53	10849.29	2354.92	10455.87	2222.01	9865.74	2389.00	10607.19	2164.07	9608.51
O	268.37	2415.41	350.38	3153.46	469.66	4226.98	342.92	3086.36	328.01	2952.17	268.37	2415.41	320.56	2885.08	260.92	2348.32
MG	0.00	0.00	0.00	0.00	0.00	0.00	1.42	10.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Milk and Milk products																
MK	0.00	0.00	59.10	39.59	1189.46	796.94	1145.13	767.24	1019.54	683.09	1189.46	796.94	1248.57	836.54	1241.18	831.59
MO	139.15	606.73	24.99	108.96	84.06	366.51	88.60	386.33	59.63	260.03	51.97	226.59	60.49	263.74	110.47	481.67
MB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	6.21	13.34	97.30
MC	0.00	0.00	0.00	0.00	0.00	0.00	0.28	1.98	0.00	0.00	0.00	0.00	3.40	23.85	0.00	0.00
Fruits, Sugar and Beverages																
FP	0.00	0.00	40.31	41.93	91.97	95.65	94.81	98.60	82.21	85.50	85.67	89.10	118.12	122.84	133.55	138.90
FPW	0.00	0.00	0.00	0.00	109.05	34.89	13.63	4.36	20.44	6.54	27.26	8.72	40.89	13.08	0.00	0.00
FM	0.00	0.00	0.00	0.00	15.74	8.02	14.61	7.45	2.24	1.14	16.86	8.60	14.61	7.45	0.00	0.00
FPA	0.00	0.00	0.00	0.00	0.00	0.00	16.35	7.52	0.00	0.00	32.71	15.04	40.89	18.81	89.97	41.38
FOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62	2.98	0.00	0.00	2.24	1.19	0.00	0.00
SU	173.80	691.75	328.01	1305.51	568.56	2262.89	493.87	1965.62	464.90	1850.33	404.98	1611.83	535.90	2132.91	566.29	2253.85
SH	134.61	457.69	236.85	805.31	274.05	931.80	226.34	769.58	191.69	651.77	170.39	579.35	187.72	638.26	138.30	470.24
T	139.15	52.88	215.55	81.91	261.84	99.50	203.91	77.48	198.23	75.32	215.27	81.80	197.37	75.00	197.09	74.89
CFE	0.00	0.00	0.00	0.00	0.28	0.13	1.13	0.52	0.56	0.26	0.00	0.00	0.85	0.39	0.00	0.00
Total		43717.57		70031.68		84138.56		72959.5		76435.76		75379.53		76020.06		77520.82
Per day		1457		2334		2804		2432		2548		2513		2534		2584
Average expenditure per head		66.98		93.48		114.43		102.61		101.37		103.42		108.02		119.25

TABLE B.11
AVERAGE QUANTITY OF FOOD CONSUMED AND CALORIC VALUES PER HEAD FOR ONE MONTH -BY INCOME GROUPS
URBAN SECTOR - 1982

	Income of spending units for one month [Rupees]															
	0-100		101-200		201-400		401-600		601-800		801-1000		1001-1500		1501-2000	
	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.
Cereal and Cereal Preperations																
R	8505.00	29342.24	6150.00	21217.49	5616.00	19375.19	6339.29	21870.58	6164.29	21266.83	6789.79	23424.80	7379.79	25460.30	7552.89	26057.50
F	0.00	0.00	133.79	465.62	435.59	1515.88	471.79	1641.86	235.09	818.14	336.09	1169.62	475.49	1654.73	624.09	2171.86
BD	3406.29	8345.43	1109.59	2718.5	2242.39	5493.87	2162.69	5298.61	2573.69	6305.56	2434.09	5963.54	2598.79	6367.05	2915.00	7141.74
CE	0.00	0.00	0.00	0.00	123.39	413.38	28.20	94.46	13.40	44.88	11.90	39.86	11.70	39.19	22.70	76.04
CEK	0.00	0.00	0.00	0.00	0.00	0.00	3.50	11.48	1.70	5.57	3.30	10.82	19.90	65.27	0.30	0.98
Meat																
B	554.29	486.56	67.00	58.8	211.89	186.00	203.49	178.63	69.39	60.91	102.70	90.15	203.49	178.63	221.89	194.78
M	0.00	0.00	0.00	0.00	19.70	17.20	25.40	22.17	9.00	7.85	15.10	13.18	16.30	14.23	28.80	25.14
P	0.00	0.00	0.00	0.00	11.80	35.89	0.00	0.00	0.60	1.82	11.20	34.07	5.20	15.8	8.70	26.46
CH	0.00	0.00	0.00	0.00	39.80	29.06	63.00	46.00	15.20	11.10	30.00	21.90	10.30	7.52	52.30	38.19
Fish																
FI	1948.89	1653.15	1166.09	989.14	808.09	685.47	910.89	772.67	785.19	666.04	864.69	733.48	1019.19	864.53	1302.69	1105.0
FD	117.70	210.50	33.49	59.9	201.79	360.91	160.69	287.41	158.19	282.94	235.29	420.83	156.00	279.00	161.00	287.94
FO	0.00	0.00	75.49	141.93	13.20	24.8	9.90	18.61	1.40	2.63	5.90	11.09	15.90	29.89	13.40	25.19
Eggs	101.21	175.10	0.00	0.00	78.72	136.19	33.73	58.36	29.99	51.88	26.24	45.39	33.73	58.36	48.73	84.31
Starch Foods																
MN	0.00	0.00	0.00	0.00	281.89	376.19	374.59	499.90	577.59	770.80	262.09	349.77	184.69	246.48	141.19	188.43
POT	294.29	271.19	67.00	61.74	184.00	169.55	201.49	185.68	153.89	141.8	211.19	194.62	242.39	223.37	296.29	273.04
SPOT	0.00	0.00	0.00	0.00	179.69	175.65	102.79	100.48	94.59	92.47	63.60	62.16	35.20	34.40	97.39	95.20
JK	706.00	288.04	366.29	149.45	224.79	91.7	446.19	182.04	362.49	147.89	544.59	222.19	391.79	159.85	276.19	112.68
JKS	253.29	269.5	0.00	0.00	23.40	24.89	19.50	20.74	10.80	11.49	14.60	15.53	41.20	43.83	40.49	43.09
Vegetables																
V	3803.00	988.77	1806.00	469.55	1897.00	493.2	2222.00	577.71	1738.00	451.87	1810.00	470.59	2112.00	549.11	2418.00	628.67
Pulses																
PU	389.69	1336.67	26.80	91.92	100.20	343.68	100.39	344.37	61.20	209.91	99.89	342.65	107.59	369.06	153.19	525.47
PU2	0.00	0.00	14.00	48.7	29.60	103.00	14.20	49.41	32.00	111.35	33.80	117.62	29.60	103.00	38.39	133.63
PU3	0.00	0.00	0.00	0.00	25.90	84.69	70.09	229.22	34.00	111.17	26.10	85.34	46.30	151.40	38.60	126.22
Condiments																
CO	114.29	281.17	308.00	757.67	134.79	331.60	140.00	344.39	143.09	352.02	139.89	344.15	151.89	373.67	157.00	386.21
CO2	294.29	76.8	101.79	26.56	102.39	26.72	134.59	35.13	95.49	24.92	124.29	32.44	119.79	31.26	131.19	34.24
CO3	0.00	0.00	13.50	27.53	0.30	0.6	1.20	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.40
CO4	424.29	229.12	319.49	172.52	234.00	126.35	266.00	143.63	190.39	102.8	240.39	129.81	274.59	148.28	298.09	160.97
CO5	17.30	21.32	13.50	16.63	31.20	38.45	20.30	25.0	14.90	18.36	16.90	20.82	16.50	20.33	22.20	27.36
CO6	7.00	20.2	36.00	103.96	13.60	39.27	21.40	61.80	13.60	39.27	21.40	61.80	13.60	39.27	16.20	46.78
CO9	64.00	184.3	176.79	509.18	81.89	235.87	79.49	228.95	69.70	200.73	80.39	231.55	85.79	247.10	91.39	263.23
CO10	29.30	104.30	21.80	77.60	20.80	74.04	20.40	72.62	16.60	59.09	21.90	77.96	22.40	79.74	23.10	82.23
CO1	0.00	0.00	6.80	22.64	10.00	33.30	9.40	31.30	9.70	32.30	12.00	39.96	12.20	40.62	13.80	45.95
CO12	0.00	0.00	2.80	15.14	7.90	42.73	8.00	43.28	4.60	24.88	7.70	41.65	7.40	40.03	6.70	36.24
Nuts and Oils/Fats																
OT	3305.75	14677.56	3169.43	14072.30	2385.59	10592.06	2147.03	9532.85	1976.63	8776.27	2010.71	8927.59	2078.87	9230.22	2283.35	10138.11
O	228.40	2055.63	394.09	3546.85	167.06	1503.62	182.42	1641.85	165.69	1491.22	201.52	1813.74	195.71	1761.46	213.73	1923.61
MG	0.00	0.00	0.00	0.00	10.60	81.6	4.20	32.34	4.20	32.34	4.50	34.64	6.20	47.73	11.90	91.62
Milk and Milk Products																
MK	0.00	0.00	691.41	463.24	558.40	374.13	668.47	447.87	302.24	202.50	467.24	313.05	512.23	343.19	718.58	481.45
MB	38.00	277.0	0.00	0.00	18.90	137.78	22.00	160.37	2.30	16.76	3.30	24.05	3.60	26.24	9.30	67.79
MC	0.00	0.00	0.00	0.00	0.00	0.00	0.90	6.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fruits, Sugar and Beverages																
FP	214.19	222.76	144.89	150.69	97.64	101.55	62.99	65.51	69.29	72.07	138.59	144.14	179.54	186.73	170.09	176.90
FPW	0.00	0.00	0.00	0.00	6407.03	2050.25	68.15	21.81	68.15	21.81	68.15	21.81	954.23	305.35	136.31	43.62
FM	0.00	0.00	0.00	0.00	56.22	28.67	44.98	22.94	44.98	22.94	22.49	11.47	89.96	45.88	56.22	28.67
FPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FOR	0.00	0.00	0.00	0.00	11.24	5.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.24	5.96
SU	597.69	2378.84	955.49	3802.88	955.79	3804.08	838.39	3336.83	729.00	2901.4	813.29	3236.93	973.69	3875.32	1114.29	4434.91
SH	0.00	0.00	0.00	0.00	26.00	88.39	26.20	89.07	34.39	116.95	26.00	88.39	27.80	94.5	20.10	68.33
T	128.29	48.75	69.29	26.33	147.79	56.16	121.29	46.09	103.29	39.25	104.59	39.74	105.09	39.93	111.20	42.25
CFE	0.00	0.00	13.50	6.2	16.30	7.49	7.00	3.22	2.70	1.24	3.90	1.79	7.80	3.58	10.50	4.83
Total		63364.05		49738.96		49984.62		48487.70		45895.37		49398.25		53962.90		58083.39
Per day		2112		1658		1666		1616		1530		1647		1800		1936
Average expenditure per head		200.80		177.80		157.40		151.23		126.40		142.80		160.87		187.50

TABLE B.12
AVERAGE QUANTITY OF FOOD CONSUMED AND CALORIC VALUES PER HEAD PER ONE MONTH - BY INCOME GROUPS
RURAL SECTOR - 1982

	Income group of spending unit [Rupees per month]															
	0-100		101-200		201-400		401-600		601-800		801-1000		1001-1500		1501-2000	
	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.
Cereal and Cereal Preperations																
R	3542.00	12219.89	6672.00	23018.39	6756.00	23308.19	6639.00	22904.54	7372.00	25433.39	7917.00	27313.64	8783.00	30301.34	9662.00	33333.89
F	2094.00	7287.1	538.09	1872.58	486.89	1694.41	530.19	1845.09	559.59	1947.40	529.00	1840.91	546.19	1900.77	699.00	2432.51
BD	1671.00	4093.94	912.59	2235.86	1076.09	2636.44	1076.09	2636.44	1185.89	2905.45	1209.49	2963.27	1342.39	3288.87	1420.89	3481.20
CE	0.00	0.00	237.09	794.28	163.49	547.72	114.59	383.90	93.29	312.55	47.10	157.78	81.89	274.36	93.49	313.22
CEK	0.00	0.00	87.29	286.34	161.29	529.06	238.29	781.62	133.79	438.86	141.59	464.44	154.29	506.10	71.09	233.20
Meat																
B	0.00	0.00	23.30	20.45	27.30	23.96	30.90	27.12	31.60	27.73	63.00	55.30	65.49	57.49	103.09	90.50
M	0.00	0.00	0.00	0.00	1.80	1.57	7.60	6.63	2.30	2.00	1.80	1.57	3.50	3.05	11.00	9.60
P	0.00	0.00	0.00	0.00	11.20	34.07	1.30	3.95	10.20	31.03	12.40	37.72	11.80	35.89	10.30	31.33
CH	0.00	0.00	0.00	0.00	20.30	14.82	7.60	5.55	9.70	7.08	11.00	8.03	8.40	6.13	18.50	13.5
Fish																
FI	1231.79	1044.87	242.39	205.6	232.59	197.30	339.79	288.23	358.79	304.35	424.39	359.99	458.79	389.17	601.09	509.88
FD	3.70	6.6	185.79	332.30	280.59	501.85	174.09	311.37	216.79	387.74	221.69	396.51	257.79	461.07	372.89	666.93
FO	0.00	0.00	0.00	0.00	12.00	22.56	3.50	6.58	6.10	11.46	10.40	19.55	13.70	25.75	23.10	43.42
Eggs	0.00	0.00	3.74	6.48	7.49	12.97	7.49	12.97	14.99	25.94	14.99	25.94	18.74	32.42	37.48	64.85
Starch Foods																
MN	260.29	347.37	805.39	1074.80	981.39	1309.67	1209.49	1614.07	1098.49	1465.94	912.00	1217.06	813.69	1085.88	729.59	973.65
POT	143.00	131.77	127.49	117.49	137.49	126.70	117.20	107.99	155.09	142.92	174.09	160.43	227.69	209.82	288.19	265.57
SPOT	0.00	0.00	246.79	241.24	225.29	220.23	268.29	262.26	175.79	171.84	245.00	239.48	206.89	202.24	181.69	177.6
JK	0.00	0.00	986.59	402.53	1616.69	659.6	1421.79	580.09	1221.39	498.33	1345.00	548.75	1023.29	417.50	998.19	407.26
JKS	0.00	0.00	292.49	311.2	162.19	172.58	88.20	93.84	74.39	79.16	66.39	70.64	47.30	50.32	46.49	49.47
Vegetables																
V	1552.69	403.70	2343.00	609.17	2241.00	582.65	2323.00	603.97	2416.00	628.15	2554.00	664.03	2807.00	729.8	3200.00	831.99
Pulses																
PU	0.00	0.00	157.59	540.56	52.89	181.44	45.10	154.69	56.39	193.45	69.70	239.07	85.09	291.89	106.49	365.29
PU2	0.00	0.00	0.00	0.00	21.10	73.42	15.70	54.63	19.30	67.16	29.60	103.00	33.49	116.57	39.39	137.1
PU3	9.00	29.43	34.20	111.83	53.49	174.94	65.29	213.53	58.80	192.27	65.89	215.49	77.49	253.42	76.20	249.17
Condiments																
CO	96.70	237.88	199.69	491.26	157.59	387.69	143.29	352.51	153.09	376.62	156.59	385.23	159.89	393.35	177.29	436.15
CO2	71.49	18.66	118.09	30.82	132.09	34.47	126.00	32.88	133.59	34.86	143.00	37.32	153.49	40.06	166.00	43.32
CO3	0.00	0.00	0.00	0.00	0.20	0.40	0.20	0.40	0.00	0.00	0.10	0.20	0.20	0.40	0.50	1.02
CO4	107.29	57.94	259.59	140.18	143.00	77.2	164.69	88.93	184.39	99.57	201.79	108.97	226.00	122.03	164.89	89.04
CO5	0.00	0.00	21.60	26.62	15.30	18.85	14.90	18.36	19.30	23.78	17.90	22.06	23.30	28.7	27.10	33.40
CO6	8.50	24.54	18.60	53.7	10.60	30.61	12.10	34.94	14.40	41.58	15.40	44.47	16.40	47.36	19.60	56.60
CO9	18.80	54.14	93.00	267.83	70.89	204.19	68.09	196.12	75.09	216.28	74.49	214.55	79.49	228.95	84.49	243.35
CO10	5.70	20.29	20.30	72.26	20.20	71.9	20.70	73.69	22.30	79.38	22.30	79.38	22.50	80.09	25.10	89.35
CO1	0.00	0.00	4.20	13.98	6.20	20.64	7.10	23.64	8.70	28.97	10.20	33.96	11.40	37.96	13.60	45.28
CO12	1.80	9.73	7.50	40.57	4.10	22.18	5.10	27.59	4.40	23.80	5.40	29.2	5.90	31.91	7.70	41.65
Nuts and Oils/Fats																
CT	1533.59	6809.18	3339.83	14828.88	2624.15	11651.26	2351.51	10440.74	2385.59	10592.06	2555.99	11348.63	2624.15	11651.26	2930.87	13013.09
O	146.00	1314.01	165.19	1486.79	166.77	1500.96	159.78	1438.05	177.60	1598.43	177.30	1595.77	185.97	1673.74	200.73	1806.65
MG	0.00	0.00	0.00	0.00	0.10	0.77	0.00	0.00	0.10	0.77	0.60	4.62	1.20	9.24	3.20	24.64
Milk and Milk Products																
MK	280.58	187.99	198.86	133.24	171.89	115.16	152.99	102.50	233.12	156.19	201.23	134.82	389.56	261.00	551.51	369.51
MO	0.00	0.00	7.28	31.76	52.47	228.78	72.95	318.06	90.27	393.61	98.54	429.67	105.53	460.14	133.00	579.90
MB	0.00	0.00	0.00	0.00	0.40	2.9	0.10	0.72	0.00	0.00	0.10	0.72	1.00	7.29	1.90	13.85
MC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fruits, Sugar and beverages																
FP	0.00	0.00	25.19	26.20	40.94	42.58	28.34	29.48	53.54	55.69	66.14	68.79	85.04	88.45	144.89	150.69
FPW	0.00	0.00	136.31	43.62	4021.43	1286.86	2794.55	894.25	1226.87	392.60	3407.99	1090.55	5248.31	1679.46	4089.59	1308.67
FM	0.00	0.00	0.00	0.00	78.72	40.14	89.96	45.88	101.21	51.61	134.95	68.82	652.26	332.65	191.18	97.50
FPA	0.00	0.00	0.00	0.00	654.33	300.99	81.79	37.62	490.75	225.74	1554.04	714.86	408.95	188.12	245.37	112.87
FOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SU	464.69	1849.50	699.69	2784.80	536.09	2133.67	544.09	2165.5	621.89	2475.16	704.29	2803.11	781.39	3109.97	924.39	3679.11
SH	65.20	221.67	70.89	241.05	92.89	315.85	89.89	305.65	80.79	274.7	73.79	250.91	77.29	262.81	64.49	219.29
T	68.00	25.84	159.79	60.72	121.09	46.0	100.29	38.11	104.79	39.82	105.59	40.12	105.09	39.93	113.49	43.12
CFE	0.00	0.00	1.60	0.73	0.90	0.4	1.90	0.87	2.10	0.96	1.70	0.78	2.80	1.28	4.60	2.11
Total		35754.56		51860.08		50596.72		48616.39		51460.52		55571.27		60304.50		65926.96
Per day		1192		1729		1686		1620		1715		1852		2010		2197
Average expenditure per head		93.13		119.03		115.32		112.93		123.23		133.23		148.32		170.95

TABLE B.13
AVERAGE QUANTITIES OF FOOD CONSUMED AND CALORIC VALUES PER HEAD FOR ONE MONTH - BY INCOME GROUPS
ESTATE SECTOR - 1982

	Income group of spending units															
	0-100		101-200		201-400		401-600		601-800		801-1000		1001-1500		1501-2000	
	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.	Qty.	Cals.
Cereal and Cereal Preperations																
R	7228.69	24939.00	8847.29	30523.17	7778.19	26834.78	7953.09	27438.19	8128.69	28044.00	8829.39	30461.42	9880.89	34089.09	9191.89	31712.04
F	329.0	1144.98	4341.89	15109.80	4867.69	16939.58	5530.89	19247.52	5124.59	17833.60	6074.69	21139.94	6233.49	21692.57	6443.00	22421.63
BD	845.49	2071.47	690.89	1692.70	623.39	1527.32	684.09	1676.04	732.59	1794.86	562.09	1377.14	761.59	1865.9	534.09	1308.54
CE	0.00	0.00	0.00	0.00	0.00	0.00	4.20	14.07	18.30	61.30	0.00	0.00	3.40	11.39	0.00	0.00
CEK	0.00	0.00	0.00	0.00	0.00	0.00	8.30	27.22	0.00	0.00	12.70	41.65	13.90	45.59	23.80	78.06
Meat																
B	0.00	0.00	58.00	50.9	31.40	27.56	62.20	54.59	64.70	56.79	106.20	93.22	156.59	137.46	88.00	77.24
M	0.00	0.00	39.39	34.40	16.90	14.75	24.40	21.30	32.39	28.29	38.60	33.70	22.50	19.64	21.50	18.77
P	0.00	0.00	0.00	0.00	12.70	38.63	0.00	0.00	0.00	0.00	2.00	6.08	23.80	72.40	21.80	66.3
CH	0.00	0.00	70.49	51.48	0.00	0.00	12.50	9.12	45.00	32.86	38.39	28.04	7.50	5.47	25.40	18.54
Fish																
FI	0.00	0.00	100.20	84.99	37.39	31.72	71.49	60.64	49.89	42.32	78.89	66.92	79.00	67.0	108.49	92.03
FD	33.00	59.02	188.59	337.3	159.69	285.62	151.09	270.24	157.39	281.50	170.49	304.93	161.89	289.55	128.89	230.53
FO	0.00	0.00	46.39	87.23	62.89	118.25	76.09	143.06	80.29	150.96	66.29	124.64	110.59	207.92	111.39	209.43
Eggs	0.00	0.00	11.24	19.45	18.74	32.42	48.73	84.31	41.23	71.33	48.73	84.31	37.48	64.85	48.73	84.31
Starch Foods																
MN	164.69	219.79	376.79	502.83	246.89	329.48	459.79	613.60	313.19	417.96	449.59	599.99	334.39	446.25	121.39	162.00
POT	0.00	0.00	236.69	218.1	212.49	195.81	192.49	177.38	221.39	204.02	200.89	185.12	447.09	412.00	398.00	366.75
SPOT	164.69	160.99	36.00	35.18	38.00	37.14	72.89	71.25	112.79	110.26	63.49	62.07	70.59	69.0	17.00	16.61
JK	7507.49	3063.05	943.59	384.98	890.49	363.32	1124.19	458.67	922.49	376.37	421.79	172.09	772.49	315.17	185.09	75.52
JKS	0.00	0.00	195.89	208.43	20.50	21.8	61.80	65.75	49.20	52.34	44.39	47.24	15.90	16.91	90.29	96.07
Vegetables																
V	2256.00	586.55	3111.00	808.85	2396.00	622.95	2858.00	743.07	3112.00	809.1	3293.00	856.17	3173.00	824.97	3421.00	889.45
Pulses																
PU	0.00	0.00	135.39	464.42	103.20	353.97	66.89	229.46	53.10	182.13	71.89	246.61	48.80	167.38	97.49	334.42
PU2	0.00	0.00	83.79	291.62	31.50	109.6	29.40	102.31	35.10	122.14	35.70	124.23	45.60	158.68	50.70	176.43
PU3	0.00	0.00	52.10	170.36	153.29	501.29	179.89	588.27	126.20	412.67	159.09	520.25	186.59	610.18	238.29	779.24
Condiments																
CO	0.00	0.00	605.19	1488.78	258.19	635.17	235.29	578.83	189.89	467.15	179.19	440.83	171.59	422.13	226.89	558.17
CO2	208.79	54.49	76.59	19.99	74.09	19.34	91.59	23.90	84.20	21.97	120.20	31.37	137.49	35.88	133.29	34.79
CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO4	71.49	38.60	162.00	87.47	173.39	93.63	158.89	85.80	155.59	84.02	190.19	102.70	189.89	102.54	196.79	106.27
CO5	0.00	0.00	44.10	54.35	41.00	50.53	36.30	44.73	39.49	48.68	34.00	41.90	43.39	53.49	35.89	44.24
CO6	0.00	0.00	20.70	59.78	18.80	54.29	19.70	56.89	14.70	42.45	16.80	48.5	17.80	51.40	9.90	28.59
CO9	88.00	253.43	91.70	264.09	79.09	227.80	72.29	208.22	74.20	213.69	66.89	192.67	71.49	205.9	64.09	184.60
CO10	48.20	171.59	29.30	104.30	22.00	78.3	21.90	77.96	22.00	78.31	22.80	81.16	21.80	77.60	27.00	96.12
CO1	0.00	0.00	17.50	58.27	17.00	56.60	17.10	56.94	15.00	49.95	16.80	55.94	15.80	52.61	17.50	58.27
CO12	0.00	0.00	14.40	77.90	9.90	53.55	10.70	57.88	9.60	51.93	12.90	69.78	9.50	51.39	9.50	51.39
Nuts and Oils/Fats																
CT	2385.59	10592.06	2794.55	12407.83	2521.91	11197.32	2351.51	10440.74	2215.19	9835.48	2112.95	9381.53	1942.55	8624.96	2044.79	9078.91
O	230.17	2071.58	306.27	2756.50	325.96	2933.71	294.66	2651.94	282.25	2540.30	236.27	2126.51	292.59	2633.33	269.94	2429.54
MG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Milk and Milk Products																
MK	0.00	0.00	135.46	90.76	613.04	410.74	443.32	297.02	631.35	423.01	723.21	484.55	610.19	408.82	2118.93	1419.68
MO	0.00	0.00	38.19	166.54	50.70	221.05	39.87	173.84	32.58	142.07	79.94	348.54	105.63	460.57	75.90	330.94
MB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.90	28.43	0.00	0.00
MC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fruits, Sugar and Beverages																
FP	0.00	0.00	3.15	3.27	47.24	49.13	100.79	104.83	97.64	101.55	148.04	153.97	113.39	117.93	100.79	104.83
FPW	0.00	0.00	0.00	0.00	136.31	43.62	0.00	0.00	68.15	21.81	0.00	0.00	0.00	0.00	68.15	21.81
FM	0.00	0.00	11.24	5.73	22.49	11.47	843.44	430.15	22.49	11.47	820.95	418.68	33.73	17.20	202.42	103.23
FPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FOR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SU	321.79	1280.76	535.39	2130.89	611.19	2432.57	478.89	1906.02	490.39	1951.79	459.59	1829.20	477.39	1900.05	451.19	1795.77
SH	209.00	710.59	103.29	351.2	126.00	428.39	157.79	536.51	170.09	578.33	148.89	506.25	252.09	857.13	200.59	682.03
T	257.29	97.77	233.19	88.6	220.00	83.59	205.89	78.24	207.09	78.69	199.49	75.80	211.69	80.44	228.00	86.63
CFE	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.27	0.00	0.00	0.40	0.18	1.80	0.82	0.00	0.00
Total		46929.26		69012.55		66225.89		68602.16		66566.37		71685.82		76540.94		74999.80
Per day		1564		2300		2207		2287		2219		2389		2551		2500
Average expenditure per head		111.24		175.06		169.64		165.06		171.12		165.78		178.87		192.63